

MOTHER BABY AND NURSERY

A

MANUAL FOR MOTHERS

BY

GENEVIEVE TUCKER

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MOTHER, BABY, AND NURSERY.



SOME NAMESAKES.

(GENEVIEVE.)

MOTHER,

BABY, AND NURSERY.

A Manual for Mothers.

BY

GENEVIEVE TUCKER, M.D.

"First the infant
Mewling and puking in the nurse's arms."

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TO MOTHERS.

"HER LOT TO BEAR, TO NURSE;
TO REAR, TO LOVE."

PREFACE.

THE object of the author in presenting this work is to furnish a practical summary of the Infant's hygiene and physical development. The aim of the book is to be a guide to mothers, particularly young and inexperienced ones. It purposes to teach and help a mother to understand her babe, to feed it properly, to place it in healthful surroundings, and to watch its growth and development with intelligence, and thus relieve in a measure the undue anxiety and nervous uncertainty of a new mother. The book is not intended in any measure to take the place of a physician, but rather to aid the physician in teaching the mother to care properly for her babe when well, that she may better nurse it when sick.

The many questions asked by those who had the supervision of babies, as to their food and general management, compelled the author in the early years of practice to a diligent search for the wherewith to answer these inquiries. Disappointed in not finding, in the works on Children and their diseases, satisfactory directions as to infantile hygiene, the author began at once to gather facts from experienced

physicians, intelligent nurses, and the institutions and hospitals for children. To this end, for a number of years the reports of the bureau of children's diseases in the many different medical societies were collected; these were carefully arranged and studied. In this way was gathered a fund of practical and experienced facts from which we have largely drawn for the contents of this book. There have been consulted, in addition, the familiar works of Keating, Routh, Duncan, Fothergill, Guernsey, Donaldson, Wells, etc., etc.

If the anxiety and solicitation of mothers in the care of their babes, especially the first born, shall be lessened and made somewhat easier, the mission of the book and the intent of the author is accomplished. The illustrations of the book are all from living pictures. It has been the habit of the author, when the attendant at a birth, to ask for a photograph of the baby. Added to this collection have been gifts of the photographs of babies with whom we have had much to do as a physician. In this way has been gathered a collection of living pictures from which these illustrations have been taken. If any parent should recognize a familiar face in these pages, we beg pardon if they are sensitive and say it was used because that particular one fitted into place.

GENEVIEVE TUCKER, M.D.

PUEBLO, COLORADO,
October, 1896.

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INTRODUCTION.

CAREFULLY compiled statistics show that one half of all deaths occur in children under five years of age. Of one million babies born, one hundred and fifty thousand die in the first year, and one hundred and fifty thousand more follow in the next two years; three hundred thousand infants crushed out by the time the third year is ended. This is swelled to between forty and fifty per cent by the close of the fifth year. When we consider this great mortality, we must admit something is wrong to destroy so many of our infants annually. Surely the human plant needs better care and attention. Now an infant is born to live; it comes to stay, and should stay at the least three score years and ten, and in our opinion will stay if given a fair chance. The joy of parentage, the glory of manhood, the requirements of society added to the trial, care, and perils of maternity urge the duty of preserving the babe that is brought into the world, of succoring the life that is begun, and the necessity of saving the lives of these innocent little ones from a premature and untimely grave. Some infants die because they are

born with such low vital power they are hardly fit to live. Nevertheless we should remember, "A child born, however feeble, may become a man." The many, the thousands of infants perish for want of proper care and nourishment after birth; and this is due in large measure to the ignorance of those having the care of them. Truly has it been said that, "It is the fate of a great majority of our race to fall from the hands of Nature into those of an ignorant nurse or an ignorant mother."

"We blame Heaven for the tangled ends,
And sit and grieve and wonder."

Decrease in infant mortality will be brought about more by strict hygiene and the prevention of sickness than by any treatment of disease already begun, no matter how skilfully applied. To obtain these results we must look to those having the care and management of babies, to parents, mothers, and nurses as well as physicians. The latter can instruct and direct in hygiene; the former must execute and carry out. A beginning in the right direction is made when diet, air, exercise, clothing, cleanliness, and kindred subjects are studied by those having the care of babies. The infant's wants are peculiar to itself. They embrace not alone sustenance, but what is greater, development, both physical and mental. It is a crime for those having the supervision of infants not to be versed in "Infantile Hygiene," for the baby is as its care is; the baby is as its father and mother are, and

this latter fact, better known under the name of heredity, must not be lost sight of if we would have a comprehensive view of the infant's requirements. Henry Ward Beecher, when asked to give a rule for longevity, replied, "Choose your father and your mother," implying the close relationship there is in the present condition of existence to the foundation each individual receives by heredity. Every one concedes it is the right of each child to be well born. One cannot stop here, but must go farther and admit it is also the right of every babe to be so nurtured after it is born that it may have quiet nerves, healthy digestion, and consequently well developed bones and muscles to give it a fair chance in the race of life. A noted physician was once asked, "When should the training of a child begin?" "A hundred years before it is born," was the reply. This answer applies also to the physical training and hygiene of the babe; it begins before it is born, is ante-natal. The physical condition of the baby after it is born is determined to some degree before it is born. Hence for a better understanding of the hygiene of the baby we shall devote a chapter each to Heredity and Prenatal Influences before we proceed to a study of the physical development and welfare of the baby.

MOTHER, BABY, AND NURSERY.

HEREDITY.

"Like genders like; potatoes 'taters breed;
Uncostly cabbages come from cabbage seed."

"That child is just like his father and his mother; he is a chip of the old block."

WHAT is heredity? In common speech we use the term as signifying the law by which the qualities and characteristics of parents are transmitted to their children. In the child's life there is a resemblance to the general form and appearance of its parents as to color, stature, and physiognomy. There will be a likeness in the color of hair and eyes, in the shape of the brow and nose, and other lineaments of the body. Not alone physical, but mental and moral characteristics are noticed in later developments, for one does not come into or show his full inheritance at the beginning of conscious existence. Truly has it been said, "Each of us is only the footing up of a double column of figures that go back to the first pair; every unit tells, and some are plus and some are minus." Each child is not only the offspring of the race, but

of the individual, bearing the consequences of his parentage throughout his compound nature of body, soul, and mind. Place any child before its parents, and by a study of the one you may know much of the other. The great law of heredity is a very simple one. It is that "like begets like." If the experience of six thousand years is a sufficient demonstration, we may say that this law that "like begets like" is always true. It always has been true, as to species, to families, to individuals. It is equally true in the realm of mind and soul as of body. By this law that "like begets like" a dog is always a dog, has fur and barks; the sheep is always a sheep, covered with wool, and bleats. The child is always red, white, or black, just as its parents were. Blue eyes beget blue eyes; black hair begets black hair. A nervous or sanguine temperament begets a nervous and sanguine temperament. Intellect gives the capacity for intellect; virtue tends to virtue and vice to vice. If we examine closely, we find that there is uniformity in all animals and the human family as to species, form, color, and other characteristics, and there is also diversity. No two hounds nor any two sheep are quite alike or just the same. No two members of the human family, in all the countless millions of the race born since the world began, have been exactly alike as to person, intellect, or moral nature; none so like that when placed side by side no mark of distinction could be found. This diversity is obtained from certain influences which exist for a definite












OUR BOYS.

period of time immediately preceding the particular birth. This time is known as the prenatal time; these influences as the prenatal influences. Uniformity is obtained from influences which extend back many, many generations, even to Adam and Eve; while the diversity, those personal characteristics which distinguish the children of a family from each other, are due to prenatal influences, and do not reach back of the individual father and mother. Heredity is an exact science. The operation of its laws are constant and uniform, and as powerful for good as for evil. Heredity may be used as potentially for the uplifting and ennobling of humanity as for its degradation. It is as efficient in the perpetuation of health as of disease, of virtue as of vice. The extent and importance of heredity, as applied to the human family, are only in these latter days beginning to be studied and better recognized, though they have been long acknowledged in regard to the lower animals. A good pedigree is everything to a race horse or pointer. If the laws of heredity may be used with so much advantage to the "beasts of the field and fowls of the air," should not parents employ these same laws for the advancement of that which is healthful, beautiful, and pure in their children? It is under the use of the same laws of Nature by which you improve the quality of fruits, that you improve, by careful breeding, horses, cows, and sheep, and it is by the use of these laws of Nature in the human family that men and women are rendered the very best. Heredity

is a solemn fact, and it is high time that men and women began to consider and apply the revelation of its laws in the great and mighty work of the world in rising to higher and better things, and in the lessening of those evils and perils which beset mankind. History is replete with the facts of heredity. The curly wool, the thick lips, and black skin mark the negro wherever you see him. These are but the hereditary inheritance of his race. You can distinguish in the red man, with his lithe form, his straight black hair, and stealthy movements, the Indian's inheritance. So we come to recognize the Jew wherever we see him, the Dutchman, the Irishman. The history of the races and nations is but a written story of heredity and its laws. The first inheritance which comes to every child from its ancestors and parents we term "vital force." Vital force includes both quantity and quality: as to quality we must have a good, pure kind, free from all taints; and as to quantity, sufficient to start the individual with a good grip on life. The offspring of parents of intemperate habits, steeped in tobacco, opium, and other narcotics, victims of syphilis and other sexual vices, are started in life with a low quantity of vital force, and that little of bad, deteriorated quality. Such children are weak in moral and mental qualities, and with little physical power. If perchance these children survive infancy and youth, imbued with these depraved organic tendencies, the chances are they become dissipated if not criminal men and women. The

children of the intemperate are deficient in physical and vital energy, and predisposed by their very organization to a craving for alcoholic stimulants; and the habit, if pursued, adds to their hereditary weakness and increases the tendency to idiocy and insanity. These children die early, are subject to convulsions, and many are imbecile or feeble-minded. Children whose inheritance is scrofula are subject to many difficulties. They have a hard time cutting their teeth, are subject to diarrhœa and cholera infantum and other diseases, of which many die. We have only to look about to see the many helpless, feeble, crude, imperfectly developed children struggling for a mere existence, living a low grade of physical life, with blighted intellect, feeble will-power, and corrupted manners, the results of the sins of the fathers and mothers visited upon them. One has but to visit our criminal courts, the jails, almshouses, and all public institutions of charity and reform, to look in the state homes of the feeble-minded, the deaf, dumb, blind, and the insane asylums to fill out the records of the lives of those born under the tyranny of a bad organization, physically, mentally, and morally, the sins of the parents visited to the third and fourth generation. It has been well said that no one sees the wisdom and kindness of such a law until he has seen a child eaten, flesh and bones, by a shameful, loathsome disease, such as is often passed from father to child. Disease expends itself and the individual is blotted out by the time the third and fourth genera-

tion is reached; but health and righteousness are perpetuated to a thousand generations. It is this fact that should bring joy and courage to every father and mother, and prove the great incentive to true living. It is the privilege and duty of the parents to provide a good intellect, great affections, and pure moral tendencies. All these are within the scope of heredity. Everything cannot be accomplished by parents in one generation; but this is within the power of all parents, to improve on the inherited sins and weaknesses coming to them from their ancestors, and by intelligent purpose give to their children a cleaner record and a better establishment in life than was given to them. In the work of heredity parents are copartners, father and mother are laborers together to an equal degree in the formation of their child's inheritance; not in quite the same way does each his part of the work, nor can father do mother's part, or vice versa, but each in his own way leaves equal impress, nor can any parent hope to escape. "A good tree cannot bring forth evil fruit, neither can a corrupt tree bring forth good fruit." The law of reproduction as given in Genesis is that every living creature brings forth after his kind. "After his kind" is the law wherever there is life. It is the law of the past, present, and future. It has governed every human being since Adam and Eve. Its action touches all of us of to-day, and all those yet to be. The physical, mental, and moral inheritance from the father is indelibly stamped upon the child at the time of its conception. The

father's work is done in the begetting. Every fibre and cell of the new being has incorporated within it the stamina of the father's physical force. Every atom and molecule of the new being is impregnated with the mark of his character, character not reputation. It is the mark of character, not one's reputation, that is transmitted to the offspring. This foundation furnished by the father, and ineffaceably impressed with all his physical, mental, and moral qualities, is given to the mother for development in the months preceding the birth of this newly created being. Upon the mother's strength, health, habits of life, and the influence of her surroundings depend the growth of the internal and external organs, the development of the child's bones, muscles, and the force of its nervous system. The child, in the nine months preceding its birth, is to the mother as the clay in the potter's hands. The impress of all habits and customs of her life, every action, thought, and feeling, conscious or unconscious, is left upon it. She shapes its nervous system, the growth, form, and beauty of its body. She furnishes the conditions for the healthy establishment of the different organs, and moulds its mental and moral habits. The mother not only transmits her emotions, character, and experiences by impressions, but also of those around her, so that the daily conditions and feelings of herself and the influence of her companions are embodied in the physical and mental nature of her child. Ignorance of law will excuse no parent, nor save from the astonishment and

distress of having their children show forth to the world the sins against body, soul, and mind which may have long since been forgotten by them. Fathers must furnish excellent clay for foundations, and mothers must mould with genius and art to have symmetrical, sound, and beautiful bodies in their children. How many fathers who have followed righteousness for years reap with bitterness and tears in their children a harvest of the wild oats' sowing of early years! The intelligent observer may read in the temperaments and physique of the children the outlines of a mother's irritableness and lack of self-control, and a father's dissipation. These manifestations are not accidents, but are the results of law. By the laws of heredity all habits of the parents become instincts in the offspring. The virtuous habits of the parents become strong impulses in the children, and likewise the vices of the father or mother become strong impulses in the son or daughter. The vices may be the open, undisguised ones, or the secretly cherished ones of either parent, alike in both cases fruit will be borne in the overpowering tendencies of the children. The very identical vice is not always transmitted, but there is always the result of a morbid organization which shows itself in some mental defect or physical weakness. For instance, the daughter of a father addicted to tobacco may not inherit the craving for tobacco, but the effect of the vice may be shown in a weak heart, poisoned nerve centres, laying the foundation for hysteria in after years, or

again in a defective eyesight, feeble will, or poor memory. Diseases of the parents or ancestors may not necessarily produce the same diseased condition in the offspring, but it gives a weakened condition of organs, with tendency to disease. Again the seeds of many diseases are transmitted from parent to child as cancer, consumption, scrofula, gout, and certain skin diseases. Of all morbid heritages, unsoundness of mind in its numerous forms seems most constant, and the results form a considerable proportion of our criminal citizens.

The parents' cultivation or neglect determines the capacity and facility for learning in the children. The truth of this law is evidenced when followed through several generations, but is not as distinctly seen in a single one. The natural dulness of children born of uneducated parents is proverbial. The children of people accustomed to arithmetic learn figures quicker than those of differently educated persons; while the children of classical scholars learn Greek and Latin easier. It has already been said that it was the effect of moral character, not reputation, that is bequeathed to children. It is the habits of righteousness and purity which give the organic tendencies for good. It is that which parents do most persistently and constantly, and not the short periods and fitful impulses for right or wrong, that gives the most marked impressions to the child's nature. Parents must do what they desire their children to be. Make sobriety the habit of the parents, and intemperance becomes hateful to the children.

Make chastity the habit of the fathers and mothers, and licentiousness will become revolting to every principle of conduct which regulates the individual offspring. Every child that is born, from the top of its head to the soles of its feet, in every atom and cell of its brain, in every emotion and impulse of its heart, is thickly coated with the impression of the habits of its parents. To give children clean and noble birthrights, we must have fathers strong and healthy, free from intemperance, narcotics, and all sexual vices, kind, pure, and good. We must have refined, well informed, and vigorous mothers, whose physical and mental influences are such as to add strength and vitality. Such a parentage, such an ancestry, gives the child a good and right beginning in life. All parents desire to give their children a happy establishment in life; but is it not a fact that children are constantly being deprived of this noble heritage by the thoughtless way in which they are created? Is it not true that again and again laborers, professional men, men of leisure, of intellect, return from a day of mental worry or manual toil, unfit for anything but prolonged and restful sleep, but instead they enter the arena of child creation, and that in the most sensual manner. The father's mental and bodily condition at the time of such a conception puts into the foundation, structure, and character of the offspring the worst elements of his nature. All through the prenatal months the mother's habits are those to foster, train, and develop these evils. This thoughtless and chance

creation of children is occurring in all the homes of the land. Not only in the homes of intemperance, debauchery, and of obscene blasphemy, but in our Christian homes, the homes of our educators, our teachers, philanthropists, ministers, and preachers of the gospel. Surely when parents touch the Unseen in that holiest and highest power of their being, the creation of an immortal soul, it should be with as much thought and consideration as the preparation of a sermon, a day's work, or the making of a garment. Is it not a fact that constantly parents are entering the temple of procreation, and by mistake get into the Holy of Holies. They enter the sacred precincts without preparatory sacrifice, without their priestly garments on, and with unwashen hands, and in the very nature of things their gifts and offspring cannot be acceptable to the Most High. To be well born, parents must elect the conception of the child, put into its nature the best gifts of their possession, prepare in a physical and mental way for the sacred office. This means great self-denial on the part of parents to keep themselves in harmony with Nature's laws; but the blessedness of such a parentage will be more than a compensation for its responsibilities. Great will be the joy of the father and mother who cultivate health and strength of body and mind, and sacrifice to the interests of the unborn the habits of sensuality, the differences of tastes and opinions, and together, after careful study of the laws of heredity, elect a child to conscious existence, — surely

He who in His love and wisdom made these laws looks with approval upon them, saying, "the promise is to you and your children." In the interests of the "little child who shall lead them," may the day be hastened when the responsibility and sacredness of parentage, with a better understanding of the laws of heredity, shall lead to a more careful selection of the husband and wife in marriage, and shall inspire the young man and woman to personal preparation for these high duties. This preparation simply means true living in all respects and in the best and noblest manner, "the white life for two." Knowledge must precede virtue, for no chance act can be a moral one. We must know in order to do. Each individual evidences all the good which preceding generations have wrought out, and so the future shall show forth the acts of parents. Each thought, each word, each deed, shall leave its impress on posterity, physically, mentally, morally.



OUR GIRLS.

PRENATAL PERIOD.

"Above all, to thine own self be true,
And it must follow, as the night the day,
Thou cannot be false to any one."

IN the important work of the prenatal period the first requirement is physical development. A perfect physique betokens the best promise of a good mentality. The mother's first attention should be given in these months to right living, acquainting herself and conforming her life to the laws and conditions of physical health. For the perfect physical growth of the unborn, the mother in the prenatal months must obey the laws of hygiene, and so live as to invigorate her health and preserve the integrity of her own nervous system. Sleep, clothing, exercise, baths, diet, and fresh air are the essentials which should receive attention. Ignorance, on the part of the mother, of the human system, of the functions of different organs and relation of organs to others, lead to grave mistakes, and often so affect the constitution of the child before its birth that after years cannot repair. The mother, to be faithful to her trust, cannot be ignorant of the laws of health. A pregnant woman will require

more sleep than at other times. Nature has allotted the exhausted energies of both body and mind to be restored by sleep, and nothing destroys health so rapidly as the want of refreshing sleep. This full measure of sleep should be secured at this time as a great aid to pure repose and tranquillity of mind, which secures the right development of the nervous system in the unborn. The mother's sleep should be of ample allowance, at early hours, in cool, well-ventilated rooms. The bed should give room for freedom of movement, and chance to lie in any posture. The mother accustoming herself to sleep in any and all positions in the early months of pregnancy will have greater freedom, and her rest be less disturbed in the later months by the discomfort of her form. Regular hours of rest should be established, and the mother should insist that her daily nap be free from interruption of family and callers. The sleep should not be one of exhaustion, inertia, or ennui, but quiet, peaceful sleep, — "tired Nature's sweet restorer." An abundance of fresh air is of the highest importance at this time. During pregnancy respiration is quickened, greater quantities of carbonic acid are eliminated, making an increased demand for oxygen. So far as health, weather, and duties will permit, the greater portion of the day should be spent in the open air and sunshine. "Lead a gently active life" is the sage advice of a physician to his *enceinte* patient when questioned about exercise. Moderate, agreeable exercise, not violent or carried to excessive fatigue, and never to ex-

haustion,should be the daily rule. This exercise may include a moderate amount of housework, and activity in the open air by walking and easy riding. Seek exercise in the open air and sunshine as promoters of good digestion, refreshing sleep, and cheerfulness of mind. It is cruel and most unwise to confine a pregnant woman to a few rooms, and a walk after dark for fear some one may see she is about be a mother. It would be well if American women learned from the Germans, who do not house themselves during this period, but go as strength will permit. Moderate exertion all through the months, avoiding violent action, is the rule. Indolence does not promote the health or tend to easy parturition, and is detrimental to the development and safety of the offspring. The matter of dress is of great importance to health at all times, but doubly so at this time. The devitalization of the organs of reproduction in pregnancy by the compression of clothing often seriously interferes with the growth of the child. Many of the ills and sufferings of pregnancy are due to the uncomfortable garments worn. The clothing should be loose, without ligature or bands, and with equal warmth throughout, the extremities receiving special attention in this direction. Right here we wish to emphasize to all expectant mothers, that if a woman spends any time and thought as to her dress, do so at this time, and if you ever have a pretty dress in all your life have one when you are pregnant. By putting forth a little thought and effort a woman can clothe

herself in becoming and comfortable garments during her gestation so that she may go where she choose with grace, dignity, and comfort. There should be the usual cleanliness of the body, and more than ordinary care of the skin by way of bathing. To apply water in one particular mode to every one is an error. Frequent sponge baths, followed by brisk rubbing, keep the skin in good condition, and give tone to the entire system. The free use of water is beneficial. The temperature of the water should be of an agreeable nature. The judicious use of sitz-baths are restful and healthful. We cannot say as much for the vaginal douche, which is better always omitted. Baths of cocoanut or salad oil, given with massage of the hips and abdomen, are most beneficial to both mother and child, giving vigor to weak and debilitated nervous mothers, and a good tone to the nervous system of the babe. Last, but not least, is diet and regimen. The diet should be nutritious and wholesome, and adapted to the particular woman. It should be generous in meats, vegetables, and fruits, and at the same time easy of digestion. There should be plenty of well-cooked food, seeking a nutritious rather than a stimulating quality, with a gratification of all harmless desires and a denial of harmful craving. A voracious appetite should be restrained, and a feeble one encouraged. The best guarantee of a vigorous, well-formed child is a good appetite, satisfied by a reasonable amount of simple, plain food. Regularity in hours of eating ought to be

observed. Much has been said in late years of the benefit of a fruit diet to an easy parturition, full directions of which have been put forth in "Tokology," "Parturition without Pain," "Eutocia," "Maternity Guide," and like books. There is no doubt that much relief of nausea, heartburn, constipation, and other sufferings have been thus obtained. The erroneous opinion that "the mother must eat for two" has led to over-loading of the system, and the more rational eating induced by the fruit regimen has done away with much of the sickness of pregnancy, and that with no permanent injury to the child; but we repeat, the diet of pregnancy should be adapted to the particular woman. If all expectant mothers were strong, robust, and vigorous, the fruit diet could be followed without restriction; but such is not the case, hence our rule to put mothers upon a very nourishing diet for the first seven months, until all bony centres of the unborn are laid, when the fruit diet can be somewhat observed according to the tone of the mother. These habits of hygiene should be accompanied by cheerfulness, contentment, and generous affections as promoters of health, and all be associated with pure and right emotions which have a salutary action on the whole system of development. The expectant mother should try to cultivate for herself the utmost tranquility of mind, be at peace with herself and all the world, for the emotional state of the mother above all else influences the growth of the unborn. The antenatal development of the

nervous system in the right direction influences above all else the future of the individual.

The nervous system is a balance to the body. Upon the influence of its workings depends the equipoise of all other organs and forces, and their perfect or imperfect action hangs upon its healthy tone. The thought and action of every brain is influenced much by its circulation. The circulation of the blood is under the direct control of certain nerves. The brain is a physical organ, and the mind, the function of the brain, is physical power. Hence the instincts, the affections, the passions, the perceptions, thought, reason, imagination, memory, are but physical forces of the brain, or, in other words, functions of the mind, and thus it is that the nervous system governs to a great extent the physical, mental, and moral status of the individual. For this reason the expectant mother cannot pass with impunity any condition which will aid in the right development of the muscular, bony, and nervous systems of her child, and she should give her first and most careful attention to this physical growth, after which the mental culture may engage her thought. The law in this connection is that the parent's cultivation or neglect as a rule determines the capacity and facility for learning in the child. In this mental life the moulding process need not be left to the ordinary action of chance occurrences of modifying influences, but may be intelligently directed and outlined if the mother so wills. The truth in the old adage, "children are

what their mothers make them," is seen very often in this connection. If the mother put forth persistent and determined effort in any direction with a whole-soul desire, she may determine with almost a certainty the mental bent and career of her unborn child. Note the wording, *capacity* for mental effort is given by parents' attainments, but the particular mental direction may be largely directed in the prenatal months by the mother.

To illustrate this law, take the following example. Of five children in a family, the two eldest are dull and very slow to learn. The third, a child of twelve years, is remarkably bright, sensitive, talented, apt and quick at her lessons, with a keen appreciation of the beauties of nature. The younger children, while not her equal, are superior to the eldest in mental and physical states. The history of the mother is this: reared in the East with fair advantages, she became the wife of a farmer, and moved to the West, and was deprived of all social and literary privileges, and much overworked in the bread-and-butter struggle of life. In the early months of the prenatal period of the favored child the mother's attention was attracted to a volume of Walter Scott's poems at the house of a neighbor. She became possessed with a desire to have a volume of her own. After much trouble and sacrifice she got one. Her own words are as follows: "I had a glorious time reading it. For hours I forgot my fatigue and cares." She read and re-read the book, and came to

know it by heart, and to repeat it by rote when at her work. There is no doubt that this was the source of the superior and poetic tendencies of the child. You see in that mother the law and result. There was the whole-soul desire followed persistently day after day, and her habit determined the bent of the child's mind. Mothers must do what they wish their children to be; more than that, they must do persistently, and that with intense interest and pleasure. The genius of Napoleon I. affords a good example of prenatal influence. Previous to the birth of Napoleon his mother shared the fortunes of war with her husband. On horseback most of the time, she acquired active and healthy habits. She was in constant peril and danger, was surrounded and engaged in all the pomp and circumstance of war. She not only became familiar with the horrors and anguish of war, but became reconciled to and *heartily enjoyed it*. She gave to her son the passion and ambition for war pursuits which did not stop short of the subjection of the world. An only child with a great passion for music has this history. This daughter of a physician did not come to the home until after a number of years of married life. The mother was supremely happy in the welcome to the baby. All through the prenatal months she was flushed with joy, and while no musician herself she spent hours every day trying to sing. Even in the night hours she would hum lullabies to her expected babe. Month in and month out she sung or tried to sing. The child very early developed great

fondness for music. The Greeks early recognized the importance of prenatal training. As soon as a Grecian woman became pregnant, she observed rigid laws of diet and life. She was immediately surrounded with works of art, music, statuary, fine pictures, and other beautiful and inspiring objects. So anxious were the Greeks that the best interests of the state be served by way of their sons and daughters, that special laws were enacted for the control of women about to be mothers. Women took special physical training with this end in view. The Gymnasium with its physical and mental culture was open to women. The law-givers of Sparta said, female slaves are good enough to stay at home and spin, but who can expect a splendid offspring, the appropriate gift of a free Spartan woman to her country, from mothers brought up in such occupations. The world has never seen a nobler physique, finer beauty, or a better type of mind than in these same Greeks. It is said that travellers in Italy, that land of painting and sculpture, are often struck with the frequency with which the lovely features of the Madonna are to be seen in the faces of children of even the uncultured peasantry. When we remember that in almost every chapel of that country there is a representation of the Virgin and the Holy Child, often from the hand of some master of the noble art, and the habit of the common people in their frequent devotions of regarding these pictures with reverence, it is very easy to see whence come the beautiful faces of the Italian children. The children

whose existence dated from the horrors of the first French Revolution turned out to be weak, nervous, and irritable in mind and body, and extremely susceptible to impressions, any extraordinary excitement throwing them into insanity. The noticeable increase of insanity and suicide in our own country the last few years is attributed by many to the anxieties, depressions, and fears caused by our late Civil War. It is the children begotten at this time who are furnishing the increase to the above ranks. The mental phase of prenatal development is worthy attention and thought, under the operation of its laws, poets, thinkers, artists, musicians, and other types of manhood and womanhood, desirable and undesirable, are produced. Any reliable work on phrenology will give the desirable traits of a well-balanced mind, and in this effort of the mother to cultivate her offspring in embryo in mental directions she must give attention to those desirable qualities which are deficient in herself and the father. It is the oft-repeated act done with energy and interest which gives the tendency. Again the physical and nervous demands upon a mother's system during the prenatal months, with the fatiguing cares of our present social arrangement, often produce a debility of the intellectual faculties, and sometimes there seems almost a cessation if not a retrograde action in these months which needs a word of caution, for the expectant mother by the exercise of a little will-power can throw off this listlessness and lack of interest she feels for mental work.

In the prenatal months the mother needs some mental occupation which requires active thought. Do it with interest, but never try to force the mental at the expense of the physical strength. The mother is the great storehouse from which the unborn child draws its supplies, both physically and mentally. Are you familiar with electrotyping, the process by which objects are coated with gold, silver, or copper by electricity. There is the electrical machine, the object or mould to be covered, and the liquid in which the gold, silver, or copper is dissolved. Silently the currents of electricity take the particles of gold or other metal from the solution, and deposit them upon the object. No movement can be detected, yet the mysterious electrical force is continually drawing particles from the solution, and dropping them upon the mould, spreading them with a uniformity no artist can attain. Leaves, insects, fruits, and even flowers have been plated by this wonderful process, every line being copied with an exactness that knows no mistake. All through the prenatal period the mother is engaged in a kind of electrotyping. The sensitive foundation of an embryo child is the object to be electrotyped. The mother holds within the mysteries of her own organization the currents with which to do the work. From the mother's character and surroundings are drawn the materials to do this plating. Day after day, week after week, until the allotted months are fulfilled, silently and steadily in the brightness of the morn, the dim-

ness of the twilight, the darkness of the night, awake or asleep, without will or choice, the work goes on between mother and child. From the mother's common life of every day, with its cares, its toils and necessities, its heavy loads and oppressive burdens, from her thoughts and feelings, her joys and sorrows, her hopes and ambitions, her aspirations and knowledge, her love and hate, her prayers and devotions, from her occupations, her places of amusement, her social gatherings, companions and home-life will she involuntarily gather and transfer to this new living being. With what materials shall mothers electrotype human beings? Shall it be good or bad, enduring or otherwise; shall it be from love, joy, charity, health, and power, from habits of industry and chastity, from pure and holy thoughts, from the cardinal virtues of prudence, justice, temperance, and fortitude; or shall it be from the dross and corrosive coating of discontent, hate, jealousy, from habits of sloth and inertia, from impure and sinful thoughts, from the sorrow and suffering of a wasted, aimless, and frivolous life? Shall mothers electrotype human beings from bodily weaknesses and ills, from their mental and moral obliquities, their foibles and meannesses, their defects and overpluses of whatever kind? Enough has been said to indicate to every parent the great responsibilities, the golden opportunities, the sacred privileges of the prenatal period. Mothers have the prerogative of choosing the materials for the electrotyping of sensitive

human beings. To them is given the privilege of choosing the materials and directing the process with an intelligent purpose, instead of leaving it to a chance plan. When the embryo child inherits from the father the base foundation-material of an unholy, impure character, the mother can never change this material, but she can by intelligent purpose so electrotype with a purer metal as to cover, and sometimes she can make so durable and compact a coating, and of such thickness, that in the wear and tear of life the plating will last nearly or quite a lifetime. Again the human mould may be of such base material that with all her care and labor the tarnished foundation is ever visible. She may beautify and make somewhat better, but can never give the highly polished brightness of purity. Moreover, in a like manner, mothers can tarnish and utterly spoil the choicest materials in these mites of humanity with the dross of her own unhallowed and unhealthy existence. In these prenatal months, if the mother's condition be one of weakness, weariness, anxiety, and anguish of spirit, if her life be burdened with labor and household cares, her nervous system weakened by bad air, loss of sleep, late hours, and society excesses, and exhausted by the marital demands of intemperate, passionate husbands, if her surroundings be such as to excite her hate, fear, jealousy, anger, and other wrong passions, she can only give birth to a spiritless, weak, puny, feeble, ill-formed, and nervous child, when under right conditions she would have given

birth to a healthful, energetic, happy baby, blessed with strong nerve-power, — one of those babies who "is a wellspring of pleasure in the home, a link between angels and men." It is evident that all through the prenatal period the father's part can only be done by way of the mother, and his manner, thoughtfulness, and care can help to give to the expectant mother wisdom, courage, hope, and endurance. He can do much to overcome confusion, weakness, discomfiture, and foreboding, to prevent her being lacerated by irritations and disappointments, for the effects of all these conditions are engrafted on the offspring.

"Ought coition to be permitted to the pregnant woman?" Experience, physiology, and observation of the laws of nature answer in the negative. The habit is never found among the savages or among the lower animals, the brutes of creation. This perversion of the prenatal period saps the vital force of the mother's strength, destroying that which rightly belongs to the unborn child. It blights and blasts, if it does not destroy, the life of the child. It is the practice of this habit which more often than any other causes the mother to suffer from innumerable ills all through the months of pregnancy, thus weakened and debilitated, in an irritable nervous state, and with wasted vital force, she goes through the agonies of death to bring forth a living child. Under the practice of this habit the organs of reproduction in the children are given an irritable and over-developed condition. As

the result of this state we find little boys and girls practising self-abuse. Later the daughters are consigned to monthly periods of pain which undermine their health and make them confirmed invalids. The sons, goaded on by their irritable organs, are found frequenting places they ought not, and when married they make their wives' lives miserable and wretched by their demands. The incontinent living of the fathers and mothers of America in the prenatal period is one of the crying evils of the day. It is practised here in our own beautiful land more than in any other nation. The unlawful habit is cursing America, debasing her mothers and fathers, and enfeebling her sons and daughters, and corrupting the morals of all. It is filling our cemeteries with little graves, and causing the death of children by the score. The familiar story in the Holy Scriptures of Mary and Joseph and the birth of Jesus reads thus: "And Joseph knew Mary not until she had brought forth her first born." Mary, overshadowed by the Most High, was permitted to have an undisturbed maternity. Would that every mother and child might be thus blessed! We bespeak for the moral tendencies of the babe that it be given prenatal love; from the first moment of conception the opportunity begins. On every hand to-day may be seen sons and daughters subject to habitual times of despondency and melancholy, cursed with periodical fits of the blues, as the lawful fruit of the dissatisfaction and discontent of the mothers because of their crea-

tion. Is it to be wondered at that fathers do not have the filial duty and respect of their children, that mothers have not the fullest confidence of their daughters, or the greatest freedom with their sons, when the first and deepest impressions of character in these children were those to create estrangement, and not love and trust? When prenatal love and care are withheld, the birthright is no better than that of a child born out of wedlock, and characters are determined which bolts and bars may not restrain. These children, begotten in lust, conceived in sin, are shapen in iniquity. The mother in these sacred months indulges in all kinds of gratification and society excesses. In the secrecy of their chamber the parents give themselves up to lustful passions, and indulge in excesses of the most debasing nature, and that because only one child can be born. The mother is melancholy and despondent at her condition, fills her home with fretfulness, and is irritable most of the time. By and by the baby is born, — a feeble, fretful thing, a trial alike to its parents and all about it. A kind Providence is to be thanked if the child is not deformed or idiotic. The wrongs and sins written in that child are not easily effaced. It will in some way always bear the evidence of being unloved and uncared for before its birth. The discomforts and dangers of maternity need no longer deter any brave, true woman from becoming a mother. We wish to make emphatic that from the first moment of conception, all through the prenatal months, for

the good and comfort of the mother, and to subserve the best interests of the unborn, the mother should be under the care of her physician, who should direct her exercise, diet, baths, and relieve any abnormal conditions that may arise. If fathers and mothers only realized the antenatal power possessed by them over their offspring, and learned to use it aright, thus lifting parentage out of the depths of chance and animalism, into the region of wise, pure thought and purpose. "All of a woman's womanliness and all of a man's manliness find full expression here in the health and character of their offspring."

"Fathers and mothers are at no time so like the gods, as when they give health to their sons and daughters," seeking after the largest, broadest, and highest culture of body, mind, and heart, and strive to surround the advent of the infant with the best possible conditions.

THE LITTLE STRANGER.

"Where did you come from, baby dear?
Out of the nowhere into the here."

THE BABY, THE FIRST HOURS OF LIFE, THE FIRST WEEK, THE FIRST MONTH.

The First Hours of Life.

THE baby is born, has breathed and cried. The cord is tied and severed, and it enters upon its separate and individual existence, helpless and unable to do anything for itself. The little one, emerging from its soft and maternal habitat into the chilly atmosphere of our world, utters a wailing cry of pain and distress. Sweet music is this cry to all ears, but not a joyous tone to the utterer. By this act of crying the lungs are inflated and respiration established. In the mean time the cord has ceased to pulsate, and is ready to be ligated with a strong white string of coarse thread an inch from the infant's umbilicus. It is now cut a little farther from the knot and the clot of blood pressed out. Wrapping the baby in a warm flannel or cotton-flannel blanket, it is put on its right side to favor the new course of blood circulation; and the doctor, carefully wiping all mucus from its eyes, nose,















OUR BOYS AND GIRLS.

and mouth, hands the little stranger to the nurse. The wants of the little stranger are few but important. First, warmth; second, gentleness in handling; and, third, a period of rest, lying on its right side to favor the closing of the valve in the heart which prevents the course of the fœtal circulation. The length of time of this needed rest varies from half an hour to several hours, according to the baby. If the baby has cried lustily and strong, showing good vitality, a half hour is sufficient. If its cries were slow to appear, and then but feeble wails, it will need a longer time of quiet. The infant's condition, from some extraordinary cause, may demand interference with this immediate rest, but such interference calls for the doctor's attention, not the nurse's. The rest has been taken, say the usual half hour of a vigorous baby, and it is now ready for its first cleansing, and to be dressed. The body of the new-born infant is covered with a cheesy, oily substance known as vernix caseosa. It is necessary to remove this from the delicate pink skin, but great gentleness and care is demanded in this act. The baby should be handled with delicacy, and the less handled the less the chance of injury. The baby is not to be sponged with soap and warm water. Never do it. The skin is too tender, soaps too irritant, and the rapid evaporation of water chills it. Instead, under cover or, if exposed, lying on the nurse's lap before a hot grate fire, smear it thoroughly all over with cocoanut or salad oil, or, better yet, fresh, unsalted lard, —

not "store lard," but leaf lard that has been rendered at home. In this anointing give especial attention to the flexures of the joints and the creases of the neck and ears. With a dry, soft cloth, in a few moments all the vernix caseosa is easily wiped off, and the baby is perfectly cleansed without irritation or exposure. The little one should be well looked over by the attending physician, for deformities. Now the little stranger is ready to have the cord dressed, and for its clothing. The manner of dressing and ligating the cord varies according to the individual views of the attending physician. Sufficeth to say, the cord is enveloped in a small pad of absorbent cotton or lamb's wool, the whole retained by a flannel bandage just tight enough to hold the dressing in place, or a small square of scorched linen, pierced in the centre by a hole through which the cord is passed, and the sides are neatly folded over the cord, and the whole retained by the bandage. A soft, warm cloth should be placed at the buttocks, inside of the napkin, to catch the first discharges.

After the other clothing has been put on, the eyes and mouth should be carefully washed with warm water. This is the only water needed in the first cleansing. Soon as the baby is dressed give slowly, drop by drop, two to three teaspoonfuls of cool water. Again the baby is ready for a much needed rest. Place it on a table, in a chair or crib, and put in the warmest corner of the room, with its eyes shaded from the light. What, without anything to eat? Yes, emphati-

cally yes; the water is all it needs, and you may be satisfied, if warm enough, it will quietly rest and sleep for hours. If comfortable, it will be good-natured. If restless and crying out, the chances are it is not warm enough, or disturbed by the light and noise, which irritate its sensitive nerves. The water can be repeated, and will soothe the latter condition; then let the baby alone. The officious nurse who constantly fusses with the baby will soon have it crying. As a rule the child will pass a stool within the first five or six hours, and sometimes several. The same is true of the action of the kidneys. If the bowels or kidneys do not act, and the baby becomes fretful and peevish, an ounce or two of warm water as an enema will usually cause a stool. Hot applications over the lumbar region or over the bladder will aid in a flow of urine. If twenty-four hours pass without any action of the bowels or kidneys refer the matter to the physician. The first stools passed by the infant are black or greenish-black, and very viscid. This is known as the meconium, and is found in the intestines at birth. When should the baby be fed? Not before five or six hours after its birth. After this time, whenever it becomes restless and wakeful, let it be taken up and put to the mother's breast. If not satisfied with what it gets, let it be given plenty of hot water, nothing else in the first twenty-four hours of life but what it gets from the mother and hot water. It is the custom to weigh the baby in the first twelve hours of life.

The First Week. The baby has been brought successfully through the crises incident to its birth and first hours of life. The requirements of warmth, rest, and gentleness in handling still continue. For the first week the baby should lie on its right side most of the time, with its eyes protected from the light. This week is characterized by the dropping of the cord, the changing of the stool from the meconium to a healthy yellow, and the establishing of regular habits of eating and rest. Every other day its clothes should be removed, and the baby thoroughly oiled all over and fresh clothes put on. The oil, with slight friction, is completely taken up by the skin, and adds to the nourishment of the baby, beside giving a healthier skin and one freer from the so-called baby rashes. Every day wash out its eyes and mouth with warm water. If the napkins are changed as soon as soiled, oil will keep the buttocks as clean as water, and prevent chafing. Often babies, if comfortable, will sleep ninety out of the first hundred hours. When the baby becomes restless, carefully lift it up and change its posture, then put back. Every three to four hours it should be put to the breast, when, if not satisfied with what it gets, fill it up with hot water. If its little stomach is full of hot water, you may be sure it will sleep, and be assured babies' stomachs hold more than a "thimbleful," contrary to the opinion of the "Sary Gamps" of the nursery; nothing in oil or teas, sweetened water, crackers, molasses, decoctions of flaxseed, and all the what-

nots of the "nursery Solons." Nothing, absolutely nothing, is to be given the baby but water and Nature's food, except by the advice of the physician. The baby is not to be wakened to be fed, but if awake every three to four hours through the day, and six to seven at night, it should be put to the breast. After four to seven days the cord will be found to have dropped off. If the umbilicus looks raw and sore, or there is any discharge, clean the latter away with a soft cloth, then take a good-sized raisin, cut open, taking out the seeds, put it on the umbilicus, and cover over with a soft cloth, and retain all by the bandage. Renew the raisin every day until the navel is entirely healed, when the bandage is to be discarded. If there is any soreness of the eyes, refer to the physician at once. At the end of the week the frequent stools of meconium will have changed into less frequent ones of yellow or greenish-yellow, and have lost their viscid character. The baby will have done well if it has held its own in weight, and very well if it has added to this. The baby will have been good-natured if it has had sufficient warmth, rest, regular feeding, or, in other words, been kept comfortable.

The First Month. After the first week the baby may be dressed and undressed night and morning. The material and amount of clothing at night should be similar to that worn during the day. In the morning dressing a sponge bath of soft warm water, at a temperature of a 100° to a 105° F. should be given in a room at a temperature of 70° F. The

directions here given are for ordinary, vigorous infants. Weak babies will be aided in their struggle for life by a daily oil bath instead of a sponge of water. This first month acquires importance in the training of the infant. This education begins with the first hour of life. Order is the first law of Nature, and is the same with the baby. Enforce regularity of habit. The same hour for dressing and undressing, the interval between meals, should be enforced for all healthy infants. Accustom the little one to lie quietly in its bed or crib, even if awake, without rocking. The sensation caused by moving rapidly in a swing or a rocking-chair is increased to dizziness in rocking the infant. One of the important things to be enforced this first month is a judicious "letting alone." Many babies suffer from over attention. Most interesting are these mites of humanity, having eyes and ears which see and hear not. The temptation is to watch the unfolding of life by seeing, hearing, touching, tasting, and smelling. The baby is so pretty, with its pink cheeks and bright eyes opening with awakening interest, and so it is taken up, tossed around, and sung to with chirping and uncanny noises, without any thought of the excitement to its nervous system and the consequent restless, uneasy sleeping period which follows. Give the baby a calm letting alone, avoid seeing if "it grows in intellect every day," and let the little frame and unwrought nerves become gradually acquainted with our noisy, rushing world. Be satisfied and

rejoice to see it a little animal content to eat and sleep, grunt and grow without the fuss and fume of most nurseries, and leave to future years the giving of honors to this heir of the household. At the least two pounds should be added to the weight in this first month. The nursery should be kept well ventilated, light and full of sunshine, and at an even temperature both day and night, about 70° F. All hail when the first month, the rubicon of infancy is past!

GROWTH AND DEVELOPMENT.

"How much does the baby weigh?
Baby who came a month ago."

"No one thinks to weigh the baby's smile or the love that came with the little one."

"HOW is the baby?" "Oh, splendid, thanks. He weighs fourteen pounds." The weight of the baby is taken as an index to its general growth and development. A large per cent of birth announcements give the baby's weight. This custom points out "the grip on life" with which "the little stranger" is started. But weight must not alone be considered in the vitality, growth, and development of the organs.

The average weight of a naked new-born infant is six to seven pounds, about one-twentieth of its adult weight, and its length is less than one third to what it will attain. The head and upper extremities are larger in proportion than the pelvis and lower extremities. The abdomen is larger, and the chest smaller, in size to its body than that of the adult. The heart and liver are much larger relatively than in later years. The middle point of the body is nearly at the umbilicus. The head is round, the face oval, the brain and

eye larger in proportion than in the adult; the eyes are dark, eyelashes and eyebrows short and thin; the eyelids allow much light to pass through them; the lips are full and slightly separated in sleep, showing the tip of the tongue resting in the roof of the mouth. The nose is short and flattened, with well-dilated nostrils; the ears are small and compressed tightly to the head; the forehead small and rather flattened, while there may be little or much hair on top of the head. The skin is soft and rosy. The pulse is 130 to 140 per minute, being faster in girls than in boys. The respiration is about 35 per minute. The special senses are dull and inexcitable, and the movements mainly automatic. The baby sleeps most of the time. The growth and development of the infant is marked by a series of changes. For convenience we will divide into two periods: I. From birth until weaning. II. From weaning until the completion of the milk-teeth at about two years of age. This first period, from birth until the ninth to the eleventh month, is the most important one to the infant from a health standpoint, as one-tenth of all babies born die within the first month, and the greatest per cent of those that perish die within the first year. This first period is largely taken up with the functions of nutrition and respiration. The muscular and osseous systems come into great activity, and most of the internal organs diminish in relative size. The infant requires not only energy for the waste and repair of the system, but a surplus for growth and

development. It is not enough that an infant live, but it must live and thrive, — that is, grow and develop; there must be an unfolding and building up of new activities. We must have in addition to the repair labor for the infant's frame, constructive labor. The demand is for repair and constructive labor; for only when the infant's frame develops properly is it healthy. Health in the adult means waste and repair; but in the infant it means more than this, it is waste and repair and a surplus for construction. In the first few days after birth the infant loses in weight. This may continue for a week, but by the end of the first month the baby should have gained at the least two pounds, and thereafter should increase at the rate of a half to an ounce a day. This rapid growth and increase should be carried on from month to month, except at the time of the eruption of the teeth, when, if the infant holds its own in weight, all is well; then soon as the teeth are cut, increase of weight should begin and continue until the eruption of more teeth, and thus on until the first dentition is completed at the end of two years. But mere increase of weight is not enough. The infant may grow fat and weigh more, but the increase of weight must be due to the development of bone and muscle, for health. An infant may grow fat from improper food, and not be healthy, only getting ready for a severe sickness; but when the infant grows heavy and develops bone, then all is well. The development of bone shows above all else the trend of health or

disease for the infant. The development of bone is shown in two ways: first, by the early closure of the fontanelles; second, by dentition. The fontanelles are spaces left by the incompleted angles in the joining of the bones of the skull. These spaces or "soft places" on the baby's head are gradually filled in before the eruption of the teeth; if not, we may know the growth of the osseous system is not what it ought to be. The first teeth appear at the fourth to the sixth month, and at regular intervals thereafter. These intervals vary from two to six months. The eruption of the teeth in the lower jaw precedes by a short time that of the corresponding teeth in the upper jaw. The teeth appear in the following order: the central incisors in the fourth to sixth month; the lateral incisors in the fifth to seventh month; the anterior molars in the ninth to eleventh month; the canines in the fifteenth to seventeenth month; the second molars at twenty-one to twenty-three months. At the weaning period of nine months, the child should have six to eight teeth, and at the very least four. This rapid growth of the muscular and osseous system must be supplied by the infant's nutrition, and if not supplied there can be no development. Do not wait until time for the teeth to appear to know whether bone growth is taking place, but watch the fontanelles, which by the second or third month should begin to fill up and gradually progress until closed. The teeth should appear on time. Whatever tends to bone growth will develop muscle, not fat.

At once is seen the importance of watching and knowing the weight of a baby, if we would keep it well, growing, and developing. Soon after birth the outer layer of the baby's skin, the cuticle, is exfoliated and renewed.

Little by little the motions of the hands and feet, the act of sucking, the cries and expression of the face, show volition; perception of external objects occurs; prehension, or the grasping of objects, takes place; memory begins to grow, as shown by recognition; the baby imitates what it sees, begins cooing and babbling as a preparation for speech. Little by little and by slow degrees the muscles take on greater action, until we find it rolling and creeping and sometimes even walking by the end of the first year.

At the end of the first year the pulse has diminished to 100 to 115. At the end of the second year the child's respiration has fallen to 28. The infant has gained twenty centimetres (eight inches) in height this first year, and only nine centimetres (three and one-half inches) the second year.

The second period of growth and development is marked by the completion of dentition. The child walks and begins to talk and think. The brain of the infant doubles in weight in the first two years. This added to the rapid growth of the muscular and osseous systems shows the great demand upon its vitality, and the caution necessary that the former is not developed at the expense of the latter. The function of the brain, the intellectual faculties, should not be called into

play until after dentition is completed. The emotions are in excess of development over the intellectual faculties, but care should be taken not to excite and agitate. It is hardly necessary to add, the whole nervous system is more irritable and excitable than in later years, and a characteristic of the nervous system is the necessity for long or frequent and deep slumber. Health demands that muscle and bone be developed before the functions of the brain are called in action. The brain should increase in size, but be slow in the taking on of functional activity. Muscle, bone, and brain is the order for health in the growth and development of the baby.

BATHING.

"'T is time the baby had his bath,
And he 'll be good, I hope;
He likes the water well enough,
But how he hates the soap!"

BABIES are usually washed with no regard as to their comfort, and the consequences are the baby frets and cries all through the bathing and dressing. The mother gets irritated, tired, and exhausted, and bath time becomes a trial and dread to both mother and child. Nevertheless cleanliness is very important in relation to the health of the baby. The skin is a regulator of temperature, and helps to oxygenate the blood. A soft, velvety skin with unobstructed pores is essential to health; and every mother is aware that only sweet, clean babies are attractive and receive attention. What is to be done? The baby must have its daily bath. How can it be given so that it will be a pleasure to the mother, and soothing and refreshing to the baby. For the bath to become attractive, careful attention must be given to its details. The temperature of the room should never be below 70° F., nor should it be so high as to be uncomfortable for the mother. The bath should be given with tenderness



THE BATH.

and soothing kindness, and without rough handling. By persuasion and care, and a playful, gentle tone of voice, the water will soon produce no fear, but be a source of amusement and joy. The bath should not be given immediately after eating, but on an empty stomach, nor should the baby be fed for an hour or more afterward. Use soft water at a temperature of 98° to 100° F., indicated by the thermometer. If water is used below the temperature of the baby's body, it will feel cold to it. The bath should always be conducted so as to leave no coldness of the surface or chilliness of the system. The temperature of the bath is a very important detail. Never use soap. Soft, pure water will keep a baby sweet and clean, and its skin will be free from excoriations and chafing. The lye and grease of soap are irritating to the baby's delicate skin. Have everything ready for the dressing: napkins folded and warmed; clothes all put together ready to slip on; pins, brush, and towels in their place; everything that will be needed laid in the order of their use, and over all the drying blankets. After everything is in readiness for the dressing, then prepare the bath, water at the right temperature, with its soft sponge or napkin. Take the baby gently up; quickly slip off its clothes. Kneeling down by the side of the bath-tub, put the baby, feet first, in the water, immersing all but the face, keeping the head supported on the left hand. Gently with the sponge, beginning at the head, wash face, nose, and ears, passing quickly and syste-

matically down from head to heel. Now turn the baby quickly on the hand, only keeping the face out of the water, and beginning again at the head follow down the back, ending at the feet. This completes the washing. Now, taking the baby out of the bath, roll in the drying blankets on your lap (the drying blankets are a soft cotton towel inside of a flannel one). Wrap well around the chin and feet, tucking the inner blanket under the arms and between the legs. Dry the face and head, and brush the hair. Now roll down the blanket to the waist, dry the body if necessary, and give a warm glow to the body by a slight friction of the hand. Slip on all the clothes to go over the head, keeping clothes rolled up to the waist-line. Now pull off the drying blankets from the lower part of the body; dry and use friction; put on the napkins and stockings, if the latter are worn; pull down the clothes, and the bath and dressing is completed, taking a very short time compared to the customary hour of fussing and crying.

A usually strong baby should take this plunge every morning after the first month. After the first week, and until old enough to take the plunge, the baby can lie in the drying blankets on the lap, and following the same order as in the plunge bath, can be sponged and dried quickly. After a year and a half the temperature of the water can gradually be reduced to tepid, that is, 85° to 90° F. The infant should always be thoroughly dried after the bath, and made comfortably

warm, and, if disposed to sleep, let it do so. A drink of water just before and after a bath is soothing and helpful. A baby should not be taken for exercise in the open air immediately after its bath. There are children so delicate you cannot give them a bath without coldness of surface. If this is the case, don't bathe with water at all, but with oil, using the best salad or cocoanut oil. Undress such a baby and put in the double blanket as if taken from the water. Have a dish of hot oil, and with a linen cloth quickly, beginning at the neck, oil down the front of the body and both sides of the legs. Then with gentle friction under the blanket rub this oil thoroughly in, so the skin is as fresh and clean as if washed with water. Very little oil is required, or else the length of time required to rub it in will tire the little one. In a like manner the baby can be turned and the back gone over also. The whole inunction and dressing should not last more than fifteen to thirty minutes. The face and hands can be washed with water. The oil is taken up and digested, and is of assistance in nourishing the child. A child, however delicate, can, usually be bathed, something as a feeble adult individual can little by little. Above all, observe the effects of bathing upon your baby, and that will be the best which conduces to the comfort of the bather. Bathing requires as much judgment and as careful observation as any one thing that pertains to infancy.

As soon as children acquire the power of voluntary motion

they necessarily make themselves dirty, and it becomes essential to wash them more frequently. A dirty, tired baby will be soothed by a rapid sponge of hot water at bedtime, giving a quiet night of sleep, when otherwise a broken, restless night would follow. Particularly is this true after a baby walks, a quick sponge of the little tired feet when put to rest will give quiet and refreshing slumber.

The air bath. The air bath consists in a full exposure of the whole of the baby's body when divested of its clothing, under a blanket, to the air. Under the blanket give gentle friction with the hand to the body, especially the back. The skin is greatly refreshed by this process, and when the baby is bathed with oil or water in the morning, the air bath should be given at night when the baby is undressed, to quiet and strengthen the nervous system. For the patient, careful attention to the numerous details of the bath, as to temperature of room and water (and the thermometer and not the hand should be the guide to temperature), gently given with despatch after everything is in readiness, the mother will be rewarded by the beautiful picture of a gay naked baby sporting in its morning bath, and we shall hear less often "the hardest things I have to do in the whole day is to wash and dress the baby."

DRESS.

"A little figure robed in white,
Spotless, serene, and pure."

HOW shall the baby be dressed? Proper clothing is essential to infantile hygiene. Mothers, especially young mothers, prepare elaborate wardrobes for the baby, without thought or attention as to the fitness of the garments to baby's welfare and comfort. If the dress is only pretty and fashionable, it is enough, and all requirements are met. The old style of low neck and short sleeve dresses, tight bands and bandaging, the long skirts and dresses, all starched stiff, a chaos of flouncings, lace, and embroideries have had many improvements, and babies are dressed in a better and more common-sense way than in the days of our grandmothers. Nevertheless the average baby suffers from improper clothing. The baby's wardrobe may be limited or extensive according to circumstances, but the garments should be soft, loose, and warm, — loose that the child may breathe and its body expand; light yet capable of resisting sudden changes of temperature, that the body may not become chilled. For the first few months babies are usually dressed with an excess of garments, which are arranged with

too much warmth and too tightly about their bodies. The great vital organs within the chest walls need the freest play in these beginnings of life. Under the plea of warmth, the long skirts are turned up and pinned, and, thus pinioned, the baby cannot kick and circulate its blood. The hands and feet become cold; baby cries; and we think of colic instead of uncomfortable clothing. To modify and correct these harmful conditions for the little one, whose right it is to be free, garments healthfully constructed and arranged, and differing widely from those worn by infants heretofore, have been devised. There is the Jenness Miller system, the Alpha Garments for babies, and last but not least the Gertrude Baby suits, devised by Dr. L. C. Grosvenor of Chicago. All of these are admirable and great improvements over the models of twenty-five and fifty years ago. While in nowise detracting from the merits of the other two, we are especially pleased, after long experience, with the Gertrude suits for the baby, and with the added importance of the great ease and convenience to the mother. Dr. Grosvenor states the advantage of the Gertrude suits thus,—

1. Perfect freedom to all thoracic, abdominal, and pelvic organs.

2. All the clothing hangs from the shoulders.

3. The greatest saving of the time and strength of the mother in caring for the babe, there being one pin instead of fifteen.

4. The resulting health and comfort of the child.

5. The evenness of the covering of the body.

Aside from the diaper, the Gertrude suit comprises three garments. First, a cotton flannel under-skirt cut princess, high neck and long sleeves, made with seams outside and fuzzy side to the body of the child. Over this the woollen garment, cut same way but without sleeves, and lastly the princess dress. The sleeveless woollen skirt is put over the cotton flannel under-skirt, then the dress over that, sleeve within sleeve. Put all over the baby's head as one garment, only pulling on of one pair of sleeves, button behind, and the little one is dressed. These garments reach twelve to fourteen inches below the baby's feet. The only band ever needed by a baby is the one to retain the dressing of the cord. This should be a straight piece of the softest white flannel, long enough to go once and a half times around the baby's body, and without hem or seam. If the baby is born in the extreme summer's heat, this strip of flannel may be lined with old white silk. Soon as the navel is healed, discard the band.

What! a baby without a band to keep the little bowels warm, and prevent rupture when it cries! What! a baby without a band, contrary to the customs and opinions of all our dear old grandmothers! What a change! Yes, one of those old-time customs that change for the better. The band has never had but three uses. First, the important and

essential one of keeping in place the dressing of the navel. Second, to keep the bowels warm. The bowels are near the vital organs of circulation, and in the warmest portion of the body, and do not need protection as do the extremities. The band cannot be kept in place without being applied so tightly as to produce constriction, and interfering with the circulation.

Third, to prevent rupture. The abdominal wall is made elastic. If there is gas in the intestines the abdomen distends and gives it room until it passes by way of the intestines. When the baby cries lustily, the abdominal walls expand evenly in all directions. The band is well applied, but in the constant motion of the baby is partially displaced, compressing a portion of the abdomen, but exposing the umbilicus, which has now to take all the pressure when the baby cries, and of course it gives away, and we have a rupture at this point, or an umbilical hernia. If the band is pinned securely down to the napkin when the child cries, the chances of distension being gone, the rupture is into the scrotum, if a boy, or into the femoral region, if a girl. It is the bandaged baby who has a hernia. In the cold weather of our Northern winters it is necessary to add shirt and socks to the outfit of the Gertrude suits. The best babies' shirts are knit soft woollen or silk shirts with sleeves to the wrist. Get shirts of large size, and they require neither button nor pin to hold them in place.

The old-fashioned shirts of linen and cotton are useless and uncomfortable garments. Pinning blankets are abominations, and should never be used. Soft woollen stockings, so long they can be easily pinned to the napkin, are better than the little socks, which must be tied so tightly to prevent baby kicking them off, as to interfere with the circulation of the legs and feet. Have the baby wear stockings when extra protection is needed for the feet and legs, or when the baby is in short clothes. Use chamois moccasins for the first shoes, and until the baby is old enough to walk and play on the ground, then a leathern shoe may be used. Stiff shoes often retard the growth and development of the feet. The child's only means of exercise for development is kicking and motion. This must not be interfered with if we would have strong legs and feet for walking. When old enough to be creeping and walking, attention should be given to keeping the baby's feet warm, as a preventive to colds, for the floors are cold, and there is always a draft near the floors, no matter how warm the house. Undress the little feet and chafe until warm. There is a chance for great improvement in napkins. The napkin should have good power of absorption, be light and easily changed, and so applied as to produce no constriction. Large quantities of diapering wadded around a child will impede the circulation in the legs, and thus interfere with the growth of the muscles, make the feet cold, and may even bend the bones of the legs, giving bow-

legs, besides such arrangement of the napkin tends to frequent urination. Make the napkins of soft canton flannel with old linen inside. Use clean nakpins and change often, and if you would escape the *bête noire* of the nursery, the odor of soiled napkins, do not dry there. There are in the market various "infants' toilet pads." Most of these consist of a small pad of absorbent cotton covered with cheese-cloth. These are designed to be put inside the larger napkins, and thrown away when soiled. Avoid the use of rubber cloth in napkins. It weakens the child by being too air-tight, preventing the tonic effect of pure air, and the escape of the natural exhalations of the body. The rubber napkin is harmful to the baby. Babies need a complete change of dress at night. For a night-dress, soft flannel, or canton flannel, is the best, made as a princess. When the infant is older, make long enough to button across the bottom, giving a chance to kick freely without exposing the feet. This gown, with the napkin, is all that is needed for night. Babies cannot rest bandaged and pinned up any better than grown persons. The baby's head does not need to be covered when in the house. Wrapping up the head is a frequent cause of scalp diseases, particularly eczema capitis or "scald head." The night or day garments need to be thoroughly aired before again worn. As a rule, little babies are too much wrapped and bandaged. When older, they suffer from insufficient clothing, especially of the arms and legs, and when taken in the open air. The

baby is often exposed to relatively greater atmospheric changes when taken out in summer than in winter. Who has not shuddered to see the baby of nine to eighteen months on the street-car or in its cab, a cool breeze blowing, beautiful in its thin, white garments, with or without some light wrap, when father and mother had twice as much clothing on. See that the baby is dressed warm enough when taken out, even in the summer-time. Choose bonnets and hats for the baby that will protect the eyes from the wind and glare of light, but not by ruffles and lace frills that are constantly flopped in the eyes by the wind.

To recapitulate, let baby's clothing be light, warm, and loose, made mostly of woollen. Relegate tight bands, bandaging, pinning blankets, long dresses and petticoats to the oblivion they deserve, and baby will evince appreciation of the freedom thus given by activities surprising to those who are only familiar with the fettered and strapped conditions enforced by the customary manner of clothing infants. Study the construction and arrangement of the dress to the personal comfort of the baby, if you would have a good-natured and healthy baby.

SLEEP.

"Oh! come, my baby, do; creep into my lap,
And with a nap, we 'll break the day in two."

SLEEP ranks next to food in importance in the infant's hygiene. That baby sleeps well and enough is an essential factor to his growth and health. Fully one half of the time the infant's system needs to be invigorated and strengthened by sleep. Healthful sleep for the baby implies habit, posture, pure air, and comfort. In the new-born, the instinct for sleep is so great there is no need to promote it, only to prevent its disturbance. It is remarkable, if babies are left to themselves and are comfortable, the amount of sleep that is taken in the first three months. Infants cannot sleep too long, and to awake them in a sudden manner, by a noise or with a glare of light, is extremely wrong. Calm and long-continued sleep is a favorable condition, and ought to be cherished rather than prevented during the whole period of infancy. When the child jerks in its sleep, rolls its head, or sleeps with its eyes half-closed, when it starts or cries out as if in fright or pain, or sleeps with a low moaning noise, it is an evidence all is not well, and the cause of such restlessness

should receive attention. There may be an error in diet, dress, exposure, or wrong position, or being too long in one position may impede some important function of the body. One of the first steps in the training of the child is regularity in the rest periods. The success in this training, and the formation of the habit of sleep, will depend largely on a calm letting alone in the first hours of life, and carefulness in not disturbing the rest during the early months of existence, and you will be surprised how easily the habit of long periods of rest is established. Adhere to this rule: let nothing interfere with the rest. With the regularity of the clock, at a certain hour undress the baby at night, or put it to rest in the daytime. The baby should have a full stomach, be clean and dry and have warm feet when put in its bed, and wrapped comfortably warm. Place the baby in a straight position, with the head and shoulders very slightly raised by a small hair pillow. The covering should be so arranged that while there is sufficient space to breathe, the face is not kept too warm. At all times give the purest air to breathe. Do not cover the face while sleeping. While draughts and currents of air should be avoided, a child's face should not be covered. The crib should not stand directly in front of a window or any bright light. The eyes ought to be screened from too much light to give calm, undisturbed sleep and to protect them from weakness. A change of position is likewise necessary in the young

infant, so that it may not be cramped by lying too long in one position. The baby ought not to be allowed to go to sleep with the nipple in its mouth, or by rocking either in the arms or the crib, neither should it be talked or chirped to sleep, or smothered by kisses and the bad breath of the nurse. Quietly, when the rest period has come, let the baby be made comfortable, and put in its crib and let alone. Soon the wide-awake eyes will droop and close, and the regular soft breathing show "sleepy-eye town" has been reached. If the baby is restless and nervous, rub its back, soothe and quiet it before it is laid down. An infant should never be kept awake when fatigued, under the impression that it will rest better at night. Overfatigue produces general irritability, pain in the limbs, and restlessness.

The baby who always sleeps itself into a colic had better have a warm flannel put across the abdomen when put to rest. This can be changed when cool without disturbing the little sleeper. Every person should sleep alone when possible, but by all means let the infant sleep alone. The air of the bed in which one or more persons sleep becomes impure. The child, from its more closely covered position, gets most of this impurity. Let the baby's bed be large enough so that as it grows and develops it can change its position freely. The custom of letting babies sleep in their cabs, cramped and unable to turn, is wrong; moreover, the upholstery prevents

a free circulation of air, and is often the cause of the profuse sweating of the head seen in many children. Never administer drops or spirits to make a baby sleep. Once or twice are all that are necessary for it to cry for the comforting drop to put it to sleep, and with each repetition of the dose the necessity for the artificial stimulant is fastened upon the little one. Its nerves will demand it precisely as those of the toper clamor for his accustomed dram. Quiet, refreshing sleep is the great index to a well-developing nervous system, upon which hangs the equipose of all other organs in maturity of life. A wakeful or fretful child is a great trial to a mother's patience; and let all arrangements that circumstances will permit be made to accustom the baby to sleep quietly and enough. Ascertain, if possible, the cause of the sleeplessness. Habit is of the greatest influence, early accustom the baby to be put to bed awake, and left by itself to go to sleep. The necessary caution and watchfulness will early form right habits of sleep, and save the mother much fatigue and annoyance. A very nervous, restless baby, if well protected, will often sleep for hours in the open air, even in cold or stormy weather, if covered from exposure to the elements. On a porch in the open air such a baby will peacefully rest for hours, when only fitful snatches of sleep would be taken indoors. If it is hard to keep the baby warm, a bottle of hot water in the crib will supply sufficient heat. The sleep

problem of the baby solves itself thus: make the baby comfortable as to food and clothing, then in a roomy bed covered from exposure to light and cold, and not too warm, with plenty of fresh air and strict adherence to regular periods of rest, the baby will make a good sleeper. The ethics of sleep ought to form a part of the baby's morality.



CRYING.

CRYING BABIES.

"Warped by colics and wet by tears,
Punctured by pins and tortured by fears."

"WHAT does ail the baby? What makes him cry so?" An infant, "with no language but a cry," has no other way of making his wants known. Hence the baby cries when it is cold, hungry, or thirsty; cries when sick or in pain; cries from too tight, insufficient, or uncomfortable clothing; cries from fears, colics, pins, and other discomforts. The first cries of the new-born baby are gladly welcomed, but ever after quiet sweetness is desired. As a rule, babies are good-natured if comfortable. By careful observation one can distinguish between the cry of pain and the worrisome fretting of the baby for something necessary to its comfort. The cries of pain are moans and sharp shrill cries, accompanied by anguish of countenance and movements of the body, as pulling of the ears in earache, clawing and pulling of the mouth in sore mouth and in teething, drawing up of the legs in colic, the stiffening and throwing back of the whole body in urinary colic. Continuous crying as a rule is due to pain or

hunger. The character of the cry will help one to decide. Many a baby is taught to cry by the mother or nurse, by never having any of its wants supplied until it gets so uncomfortable as to break forth into wails and tears. This baby is never fed or given water until it cries for it. Its position is never changed until it cries from weariness. It is never undressed and put to rest until it cries. Baby soon learns this, and, as it grows older, when any desire comes it immediately begins to cry. The baby who never has anything it wants until it cries for it, will early learn to cry soon as it wants something. Anticipate the baby's wants and needs if you would have it good-natured. No baby cries unless there is a cause for it. Ascertain this cause; give attention to the baby's tones in crying, and hunger, thirst, pain, pins, or fears will soon be recognized. Little babies often cry from too much and too rough handling, their muscles becoming sore. This same condition can be produced by too tight bandaging of the clothes. Nursing babies sometimes cry from passion on the part of the mother. This is in reality a form of colic. The passion of the mother has so affected the milk as to change its quality and make it indigestible. In fat babies, fretting and uneasiness are often caused by chafing; and rough and stiff clothing may produce discomfort in any baby. The restlessness of such a baby will help to decide the cause. Thirst and colic are the two factors which, aside from all other causes, have let in the greatest flood of tears

and wails. Nursing babies suffer especially from thirst. Milk is the baby's food, not its drink. The telegram sent to a young mother saying, "Give the baby water four times a day," was a most fortunate greeting to the new baby for its future comfort and happiness. Perhaps nothing to which an infant is subject gives the mother more care and anxiety than colic. We wish to make most emphatic that colic is indigestion. If it continues day after day, something is wrong with the baby's food. If the mother is nursing the baby, her diet and habits of life demand attention to discover the source of the colic. If in a hand-fed infant, its food is wrong and demands some change. This is for continuous and oft-repeated colic. These are the so-called colicky babies, the bane and dread of all mothers. Every baby may have an attack of colic at most any time, from slight disturbing causes, and that be the last; but constantly recurring colic should be referred to the physician, that the particular defect of the digestion, in either food or child, may be corrected and not interfere with its future growth and development. The pains of colic cannot be mistaken, beginning often with slight restlessness only sufficient for one to observe the baby does not feel well, increasing until the baby writhes in agony. The countenance denotes anguish, is flushed, and often covered with drops of perspiration. The legs are drawn up on the abdomen and extended, in quick succession. The more violent the attack, the sharper and more prolonged the

crying. What are the causes of colic? An accumulation of gas or curds in the child's stomach or bowels. A cold or cold wet feet may have caused the spell of indigestion; mental troubles in the mother, especially grief or anger; too rapid or too frequent nursing and over-feeding; nursing the baby when the mother is over-heated or exhausted with fatigue. What can be done to relieve the colic? Put a hot compress, dry or wet, to the child's abdomen. Often a flannel wrung out of very hot water and applied all over the abdomen will give almost immediate relief. Give hot water internally; sitting the child up, and gently rubbing the stomach and back, will assist in expelling gas. A child suffering with colic should never be laid upon the back, but either upon its stomach or right side. An enema of warm water into the bowels may help to relieve by expelling any curds of milk. We wish to emphasize again, the colicky baby is crying from indigestion, and for correction of the diet and for medication should be referred to the physician. Whenever a baby cries with pain, as earache, colic, or urinary colic, a hot compress applied to the seat of pain is always soothing. Crying due to pains of teething and nervousness, as well as thirst, is often relieved by a drink of water.

Babies cry from fear, fright, loneliness, and others cry when sleepy and are unable to sleep. This latter is a form of nervousness, and often produced by over-fatigue in the infant eighteen months to two years old. In the latter case a hot

sponge bath will soothe and quiet. If children habitually cry when sleepy, and can't go to sleep, this nervousness can be overcome by proper medication. For crying when sleepy, the German mothers are in the habit of giving what they call coffee soup, nothing more than a few drops of cold coffee put in a cup of hot water and given by sips to the baby. It often quiets the very nervous baby that cannot sleep, with no bad results. A mother whose baby had spasms of crying lasting for hours, without any adequate reason, gave the history during the prenatal months of great outbursts of tears and sobs prolonged for hours. Such a nerve condition should be removed, and calls for the physician. The crying baby is a great tax upon the mother's or nurse's patience, and tempts one to resort to some simple "tea which mother used," or from lack of knowledge, or by the advice of a friend, to give a few drops of paregoric, soothing syrup, Godfrey's cordial, or some other quieting lotion which is thought to be perfectly harmless. Don't do it. What is in these preparations which quiet your crying baby? Opium in some form. Can an anodyne that stupefies an infant into a sound sleep for hours be harmless? Can the delicate brain in the process of development be thus acted on without harm? Anodynes and soothing syrups are the curse of babies, drugging them to stupidity, idiocy, insanity, and intemperance. Don't do it. Many a beautiful babe has been laid away by tender hands

and bleeding hearts as "too good for this world," its life blighted through ignorance and mistaken kindness. Ascertain the cause of the crying and correct it. If the crying is due to colic, have the indigestion cured, and the baby will become good-natured and gentle and "just as good as he can be."

THE EYES.

"An infant crying for the light."

THE eye of a new-born infant turns at once toward the light, significant in more ways than one of the future needs of its being. The eyes of a baby at birth are but imperfectly developed; the eyebrows and eyelashes are short and thin; the eyelids are almost transparent, and allow much light to pass through them. The iris is very imperfect, and lacks the pigment which comes with the growth of the baby. It is this lack of pigment that makes the eyes of all new-born infants of the same color, namely, a dark blue. The light which is the natural stimulus to the eye, if too strong, becomes an enemy to the young. Infants should learn to use their eyes little by little, the same as they learn to use their limbs. The resting place of the baby should be turned away from the light of the window, and so shaded that no strong rays of light fall directly on the eye. Especially should the eyes be protected from artificial light. At the moment of birth the eyes are exposed to the danger of infection from the vaginal discharges of the mother. If the eyes are closed, these dis-

charges are deposited on the borders of the lids and carried into the eye when it is opened. The first duty then of the physician, after the necessary care for the maintenance of life, is to cleanse carefully from the eyes this mucus. This cleansing should take place before the babe is handed to the nurse. In the first cleansing and dressing of the baby, the careful washing of the eyes is of great importance. This should be done with warm water and a very soft cloth. The cloth for washing the eyes should be burned each time for the first two weeks, or whenever there is any soreness. The eye should always be cleansed washing toward the nose.

Children should be taught never to rub the eye except toward the nose. Cold, moisture, and strong winds are hurtful to the eyes in the first months of life, and the baby should be protected against such. When the baby is taken out for exercise, its eyes should be especially shaded, particularly if asleep in its cab. Who has not seen a sleeping baby trundled along by a careless nurse-girl with the strong rays of the sun pouring directly into its eyes? Do not protect the eyes by a veil, but by a bonnet that comes over the face far enough to shield the eyes from the sun and wind. The shade of the baby's cab should be of a dark instead of a light color. Cleanliness is an important factor in care of the eyes, especially after children get to playing about the floor. The eyes should be as carefully cleansed as any other part of the body, with clear boiled water and soft sponges or linen cloths,

and without the irritating action of soap. Soon as the infant is old enough to use its arms and handle objects, it ought to be carefully taught not to carry substances to its eyes, nor given playthings with which it can puncture or hurt the eyes. The habit some babies have of digging their eyes with their little fists when sleepy should be patiently broken up. Cleanliness and protection of eyes from too much light, cold, moisture, strong winds, and accidents make up the hygiene of the eyes in babyhood.

NURSING.

"A baby is a tiny feather from the wing of love dropped into the sacred lap of motherhood."

BLESSED, thrice-blessed that baby whose nourishment comes from the maternal founts. No reasonable person can doubt that the mother's milk affords the very best sustenance for the baby, and all authorities are agreed that breast milk is the only proper food for infants. The digestive organs of a new-born child are especially adapted by nature to the assimilation of the flesh, fat, bone, and muscle elements found in human milk. But it is a lamentable fact that the habits of our modern life tend to unfit women for the maternal office of lactation, by creating an emotional and irritable nervous system, thus impairing the vegetative function. The mammary glands have suffered at the hands of the dressmaker, corset-maker, and the manufacturer of bosom pads, until in all classes and conditions of life we see infants with pale, wan, and thin faces, flabby skin, pulpy muscles, distorted bones, and swollen glands, telling their own story of malnutrition, because the mother has not been able to nourish the little one herself. Every mother who has health suffi-



cient to mature a living child ought, if possible, to nurse it from her own breast. Her own health requires it, as the efforts of the child to draw the milk causes the uterus to contract, and nothing else will take its place to her infant. Let every effort be made at the start to nourish the infant in the natural way, namely, at the mother's breast. How soon after its birth the baby is fed depends on the condition of mother and child. This question has been fully discussed in the chapter on "The Little Stranger," and needs no repetition here. How often shall the baby nurse? This will vary in every instance according to the special circumstances of the case, as they may affect the mother and child; but this rule applies to all cases, so arrange the intervals of nursing that the baby will take its food with regularity. It is not practical that the length of time between nursing periods shall obtain the same clock-like or mathematical precision in all cases. Any weakness of the digestive organs in a baby necessitates its being nursed more often than a stronger one, less in quantity, but more frequently taken. Hence, while a strong babe will nurse a large quantity, and wait three and four hours before nursing again, the frail baby may require a less quantity, and to be nursed at shorter intervals. Again, the milk of one mother may be deficient in quantity or quality, requiring more frequent nursing to obtain the same result as when there is plenty of good quality to be obtained, and sufficient quantity for a number of hours. How often then shall

we nurse the baby? At regular times nurse the baby, the interval between nursing being regulated by baby and mother. The baby requiring less food in the first few hours of life, once in four hours will satisfy and keep quiet a usually strong infant. After the first week, generally nurse every two hours during the day, and twice between 10 P. M. and 6 A. M. After a month, two and a half hours in the day, and same as before at night. After three months, every three hours in the daytime, and once at night. Nursing babies suffer from too frequent nursing. Do not place the baby at the breast every time it cries. The cry of grief, pain, or uncomfortable garments meets with the same treatment; and as a result of this we induce indigestion by filling the stomach to overflowing, and weakness and diarrhœa follow. Neither wait for the baby to cry for food, but carefully watch and anticipate the cry of hunger by regular periods of nursing. Whenever a baby after sucking for ten or fifteen minutes drops off to sleep and appears satisfied, we judge it has had sufficient. On the contrary, when a baby tugs away at the nipple for half to three-quarters of an hour, and then leaves it fretting, sufficient nourishment has not been obtained from the gland. An accurate method is to weigh the baby before and after nursing, when there should be a gain of several ounces. Under the right conditions of lactation, not alone the baby should grow and develop, but the mother should thrive and even grow stout. The infant at the breast requires

food in sufficient quantity and of right quality for its welfare. Hence, it becomes the first duty of the nursing mother to take care of herself in order that she may maintain her own system in a condition to sustain the young and tender one dependent upon her. Every mother knows that her milk varies in quantity and quality. Its composition changes from time to time, and varies greatly in different women and countries. Different temperaments and constitutions in women have great influence in the quantity and quality of milk. The richest milk is secreted by brunettes with well developed muscles, fresh complexions, and moderate plumpness. Nervous, lymphatic, and fair-complexioned women, with light or auburn hair, flabby muscles, and sluggish movements, as a rule, secrete poor milk. Rheumatic women secrete acid milk, which causes colic, diarrhœa, and marasmus in the child. Emotional states greatly influence the milk. Grief and anxiety of mind dry up the milk. Fits of anger produce an excessively acid milk, followed by colic and green stools in the baby. Great fear arrests for a time the secretion of milk. A fretful temper lessens and vitiates the milk. Menstruation and pregnancy deteriorate the milk. The continuance of nursing after the mother has become pregnant is accompanied by grave consequences to the child.

Every mother should know that certain articles of food eaten by herself affect the milk and child. Fruits eaten by the mother will often give the milk a laxative effect. Boiled

cabbage, turnips, green fruit, or acids in excess produce colic and diarrhœa. Certain medicines taken by the mother will show their action in the child through the medium of the milk, as opium, castor oil, calomel, etc. Sometimes the results are serious, and the nursing mother should not take medicine of any kind without the advice of her physician. A healthy woman of twenty-five to thirty years of age affords the best sustenance to her child. The nursing mother should have an abundant supply of nourishing and digestible food, be regular in her habits of sleep and outdoor exercise, and whatever tends to maintain a good degree of vigor and endurance. She should be treated kindly and with consideration, that she may maintain a tranquil state of mind, and thus impart to the babe in her arms an abundant supply of good milk for its rapid growth and development, and the additional force to her milk from the indwelling spirit of love, happiness, and contentment of her daily life. The animal heat of the mother's body imparted to the infant in her arms is not more grateful and necessary to its physical system, than the vitalizing influence of her own spirit and emotions to her milk, which touch the intellectual and physical growth of her offspring.

The average secretion of milk in a healthy woman is forty-four ounces in twenty-four hours, the amount of solids varying eight to fourteen parts in one hundred. Of the solids, half should be sugar, a third fat, a sixth casein and

albumen, or more commonly called albuminoids, the remainder the salts or inorganic constituents. It is plain that it is the mother's food that must be looked after in the nursing infant. If the mother's diet is not what it should be, her milk will be affected, and the child suffer. Care should be taken as the infant grows to keep the milk rich in the solids, as from these we get muscle and bone elements, a supply of which will be needed in teething. Vegetable and fatty food increases the amount of fat. Meats increase the casein and the sugar. Warm fluids containing milk or starchy food increase the watery portion of the milk, and make a greater quantity of milk. Pea and bean soup, thoroughly cooked, with whole wheat bread and oatmeal, will supply albumen besides the salts needed in teething. Foods rich in nitrogeneous elements do likewise, and need, after three months of lactation, to enter largely into the diet of the nursing woman. The mother should take out some milk from the gland every few weeks, and let it stand for the "cream" to rise, thus judging of the quality, if the milk cannot be subjected to chemical analysis. Milk rich in solids will have quite a cream, while poor milk will be blue and watery. In this way she will have an intelligent idea of its condition. Many women have sufficient quantity, but baby does not thrive because of the poor quality of milk. A vigorous infant requires milk rich in solids. As long as a baby thrives and develops, nothing is needed beside the nourishment obtained at the maternal foun-

tain. If the mother has not enough milk, or the child does not thrive, do not wean, but supplement the mother's milk with other food. As to what should be given depends upon the individual child, suggestions for which will be found in the chapter on "Feeding."

To recapitulate.

Observe regularity in nursing.

Study the child to know the length of time between nursing periods. Nurse a child from two to four hours in daytime, according to age and condition, and as seldom as possible at night.

Always remove the child from the breast as soon as it has fallen asleep.

Avoid giving the breast when greatly wrought by emotions, over-heated, or over-fatigued.

Look carefully to the health and diet of the nursing mother.

THE WET NURSE.

"A little sickly face,
A wan, thin face."

CIRCUMSTANCES occasionally present themselves when it is desirable to employ a wet nurse for the baby. Whom shall we choose for the important office?

"Choose one of middle age, nor old nor young,
Nor plump nor slim her make, but firm and strong;
Upon her cheeks let health refulgent glow
In vivid colors that good humor show.
Long be her arms, and broad her ample chest,
Her neck be finely turned, and full her breast;
Let the twin hills be white as snow,
Their swelling veins with circling juices flow;
Each in a well projecting nipple end,
And milk in copious streams from these descend.
Remember, too, the whitest milk you meet,
Of grateful flavor, pleasing taste and sweet,
Is always best."

The wet nurse should be in vigorous and robust health, without physical or mental deformity. She should be free from all taint of scrofula, consumption, syphilis, or other disease capable of transmission through the milk. Her own child should correspond in age to that of the one she is to foster, and present a healthy appearance. There should be

no return of her menses. A woman of intelligence, of gentle temperament and disposition, with no depraved moral or mental tendencies, as dishonesty or alcoholism, hysteria and untruthfulness, and who is willing to submit to a careful regulation of her diet and personal habits, should be chosen. The attraction or aversion of a child to a nurse will indicate if her magnetic currents are favorable or unfavorable to the baby. The difficulty of procuring a good wet nurse on short notice, and the perfection to which artificial feeding has been brought, have almost entirely done away with wet nursing except in occasional cases.























LITTLE FACES.

WEANING.

"Who is queen of babyland?
Mother, kind and sweet,
And her love, born above,
Guides the little feet."

WHEN to wean the baby ought to be determined by two circumstances, — the state of the milk, and the condition and development of the child. Nature teaches that the baby should have the breast until, by the acquisition of the teeth, it is in condition to take other food; and, if there be nothing of special importance in the mother to demand the weaning of the baby at an earlier period, we will find when the child is about nine months old it will have sufficient teeth to be weaned. Right here we would emphasize the fact dwelt on in the chapter on "Teething," that no baby should go beyond six to six and a half months without teeth. If it does, it is either sick or the food is wrong. In either case the attention of the physician should be called to the condition, so that by the time nine months is reached, and the constituents of the mother's milk begin to change very rapidly, the baby will have developed teeth sufficient for other food. Do not wait until weaning time is reached to

supply bone elements for the teeth, but supply after the fourth month when the healthy infant demands them. We think, under ordinary circumstances, no child should be nursed beyond a year. By that time the milk has so changed it retards rather than aids development. Children who are nursed many months beyond this time invariably develop rickets. Begin the weaning when the child is strong and well, and select one of the rest periods in the evolution of its teeth. For the baby to be deprived of breast milk is a great change; and this change will be less of a shock to its system, and much easier borne in all respects, if not imposed just when cutting a tooth.

Do not wean the baby in the very hot weather. If nursing disagree with the mother, or the supply of breast milk is small, or the weaning age is reached at this time, judicious feeding, and giving the breast at longer intervals, will tide over the few weeks of midsummer's heat until a more favorable time is reached for the event. Prepare the child for the weaning process by getting it gradually accustomed to other food besides its mother's milk. At the same time give the breast at longer intervals, so as to accustom the child not to take it. The weaning process should be a gradual one, occupying at the least two weeks. Wean the baby from the breast first in the daytime. When once begun, be firm and unrelenting. Let a week pass after the baby is weaned in the daytime. In this time it will have become accustomed

to drinking milk and taking other food. Do not neglect to give the baby plenty of water to drink during the weaning process, as it soothes its irritation and nervous fretfulness. When the time arrives to take the breast entirely from the babe, it is better the mother excite aversion by putting some bitter substance on the nipple, as soap, salt, or a very little quinine. Then let the mother go entirely away from the baby, if possible, for the night. One good cry will usually end the matter. Soon as the baby has taken its drink of milk once, and gone to sleep, the event is generally completed. One night suffices, if the mother is unrelenting, but may be prolonged several nights by yielding to the importune appeals of the suckling. Avoid overfeeding the baby after weaning. The foundation of a weak digestion is often laid at this time by overtaxing the stomach.

FEEDING AFTER WEANING.

"And all the weakly little children
Had great stomachs and died."

TWO things are of paramount importance in feeding babies after the weaning period, namely, *regularity* and *to avoid overfeeding*. Overfeeding and the giving of improper food causes more deaths among children than nearly if not quite all of the other causes combined. Milk will chiefly enter into the infant's diet after it is weaned. Five periods of feeding, with perhaps a drink of milk in the night, will suffice. When the baby is a year old, no food will be required at night, and seldom a drink of water. When weaned, the baby is supposed to have at the least four teeth with which to masticate its food. Let at least two of the five meals of the day be bread-and-milk or milk alone. Whole-wheat bread, graham bread, and occasionally rye and corn bread are best. Let the bread be thoroughly baked. The three other meals may be made of porridges, plain soups, bread with cream or butter, beef and chicken sparingly. Most infants like chicken bones to suck, and the juices extracted are never hurtful. This is true of the bones of any fowl. Infants, as a rule, are fond of both Irish and sweet potatoes. When the digestion

is perfect, a limited amount does no harm. Potatoes fatten the tissues, but do not develop bone. It is the supplying to the infant of bone elements, and their assimilation, that is the great demand of the infant's system at this time, and it continues until all of the temporary or milk teeth are cut. These bone elements are found in oatmeal, whole-wheat flour, some in graham and rye. All should be carefully and thoroughly cooked, as the starches of these grains are harder to digest by the infant, while raw starch is an irritant and rejected by the child's digestive organs. Let the oatmeal and graham be cooked as a porridge instead of a mush; plenty of milk may be added; avoid sweetening. Babies relish porridges better than mushes. Soups made with milk, plain beef, mutton, and chicken are excellent. When the baby is fifteen to eighteen months old, pea and bean soup are good. We do not mean the green pea or bean of the garden, but the dried vegetable. After fifteen months, any of the cereal foods may be given; care should be taken that the starch is thoroughly cooked. Crackers, — soda, graham, and oatmeal, — when made of good flour, are good for the baby. When a child is eighteen months old, a milk gravy made of milk, butter, and flour thickening, eaten on bread, is relished and healthful. Avoid making too rich with butter. Milk toast is very good. Should the baby have any fruit? No, not as a rule, until eighteen months old, though this depends somewhat on the season of the year at which the baby is

weaned. Fruit should be avoided in the hot season until one and a half years old; though we have seen children, strong and well, eat baked sweet apples or even raw scraped apples on bread at a year or fifteen months, with no bad effects. The fruit selected for children should be thoroughly ripe, but not decayed. Wash, to remove all fungus. Fruit is better cooked, especially if given before eighteen months of age. Sweet apples, sweet oranges, pears, blackberries, black and red raspberries, and watermelons are the fruits best adapted for young children. Let the fruit be given without sugar, unless cooked. We have seen the child of three summers eat its bread and fresh ripe strawberries with impunity, whereas when sugar was added harm resulted. The pulp of grapes may be given at two and a half years. Little children are fond of bananas; but bananas are rich and hard of digestion, and very few children can eat them with impunity,— an example to the contrary that, because a child likes a thing, therefore it will not hurt it. At three years of age, bananas may be given, minced fine, in oatmeal or cereal mushes, sliced on bread, or in milk and bread. All fruit should be eaten with a piece of bread or a cracker, and not on an empty stomach. What as to vegetables for the little child? With the one exception of potatoes, children do not care for them; they learn to eat them as they grow older, though we have seen children with whom potatoes did not agree eat baked squash or stewed sweet pumpkin on bread with relish and

impunity. Avoid an excess of potatoes until the infant is two and a half or three years old, for reasons already given. Well-baked stale bread should be used for young children, never fresh or warm bread. Eggs may be given after two and a half years. Sweets are the delight of all infants. They are not alone harmful of themselves, but soon destroy the appetite for other nutritious food. The little child allowed sweets in any quantity is puny and undersized, with flabby muscles, small and rapidly decaying teeth, subject to frequent attacks of indigestion and gastric fever, takes cold easily, and soon becomes a victim of catarrh in its various forms. Assiduously keep sweets of all kinds away from infants, — sugar, candy, nuts, cakes, and pastry; and above all avoid the pernicious habit, as soon as the baby is weaned, of letting it always be found with a cooky, gingersnap, or doughnut in its hand. We have been often asked if little children should be taken to a table filled with miscellaneous food, to eat with adult persons. There is no doubt that children who eat at the table with grown people are often given food they would not have had, if fed by themselves. Every child's diet should be carefully regulated, not alone for simple growth and development, but much sickness will thus be prevented, and a good foundation made for future years. We would make emphatic that no little child has the ability to digest a general diet adapted to adults. That many children have survived, in one way and another, such pernicious

feeding is no proof that it is the best or even allowable. A child had better never be at the table with elder ones if there is to be promiscuous feeding; but if it can be taught to see food and give way to what is best, instead of what is wanted, there can be no objection to the table; but if the infant is to be given a taste of everything adults eat, or anything it reaches its hands towards, then we need to prepare for vitiated digestion. It is very important that in the feeding of infants after the weaning period we start aright, avoiding all errors and excesses in food, for the tender digestive organs are easily deranged. Like the adult, the infant's stomach requires periods of rest. Its sensitive organs require less in quantity at a time than an adult, and hence more frequent meals, but not continual "stuffing and gorging." The overfed baby has a morbid appetite, and like the adult dyspeptic always wants food. It is not the amount of food taken, but that which is digested and assimilated that does the good. Hence, watch the growth and the development, the sleep and the habits of your children, and regulate the quantity and quality of their food accordingly. Your neighbor's child, no matter if it is a healthy specimen of its kind, cannot form the standard for yours or another. Every child is a law unto itself, and its food should be selected according to its own requirements. Overfeeding and wrong quality of food may create morbid appetites which are difficult to overcome, and debilitate and degenerate the vitality of the infant.

TEETHING.

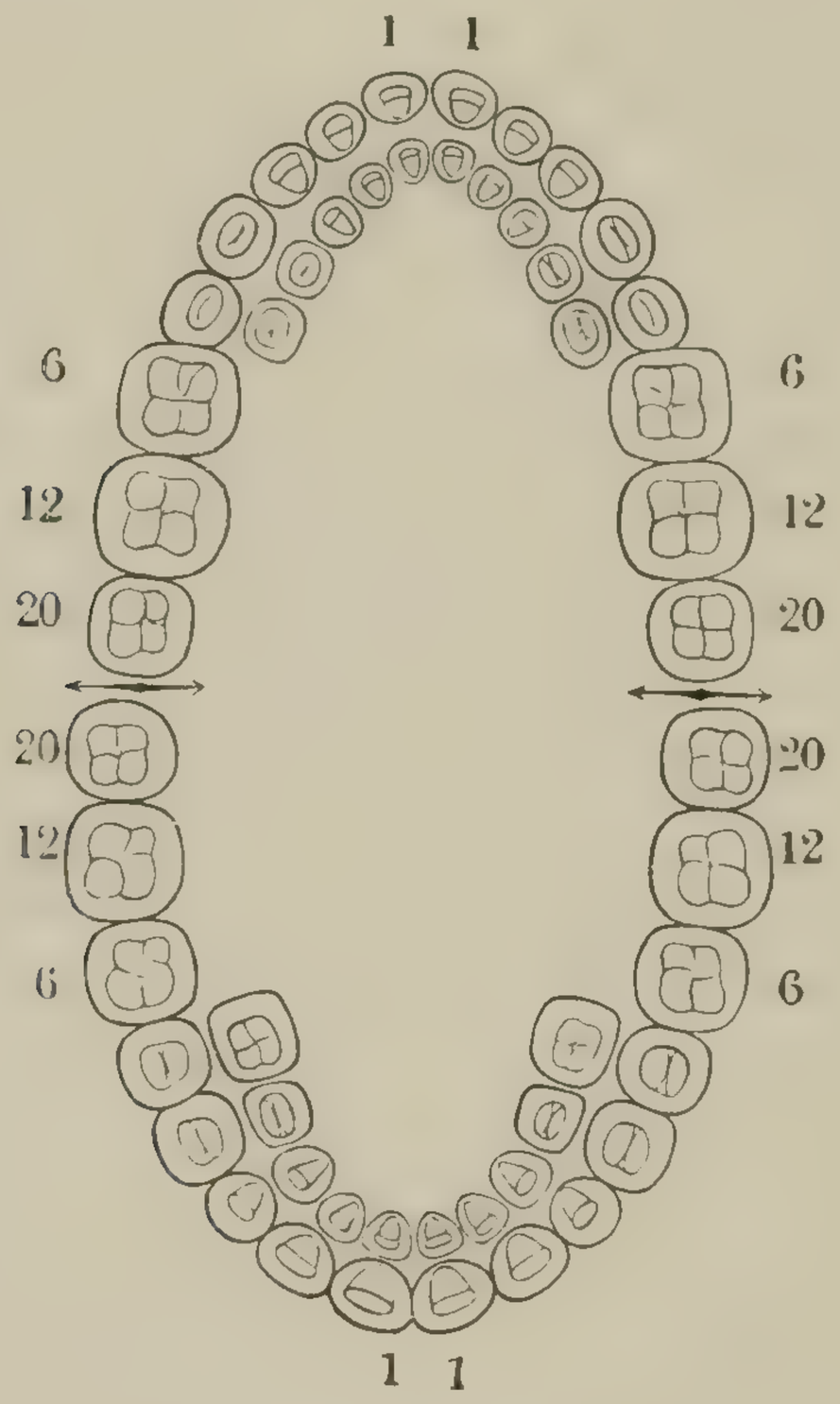
"Little children are idols of hearts and of households;
They are angels of God in disguise."

THE first tooth marks an epoch in the infant's life. The news that "baby has a tooth" is announced to each one of the family and all visitors. Oh, that it could be photographed for the little one's comfort; for many times a day baby is made to open his mouth to show the pearly white line peeping above the pink gum. Teething is looked upon with dread by most parents, as a time of consequent ills. These ills are both real and imaginary. Although teething is strictly a physiological process, and productive of no evil consequences in some children, to others it brings great distress and many troublesome diseases. In fact, nearly every child suffers more or less during the necessary development of dentition. Nature is not to be blamed, for she did not intend it thus to be. A noted teacher has tersely said, "The child teething should suffer no more than the puppy or kitten with which it plays. Nor would it if the ancestors of the child lived as perfectly natural a life as did the ancestors of the four-footed mates." The rapid growth and development

of the various organs and tissues of the infant occurring at the age of the eruption of the milk-teeth render the harmonious functions of the various organs peculiarly susceptible to any disturbing action. When nutrition is at fault, and there is large development of the nervous system, dentition may make a serious complication; but we do know that even in hot weather healthy children do teeth without any trouble; and it is not until the tooth is seen protruding from the gum that teething is known to be going on. Ordinarily the milk-teeth make their appearance from the fifth or sixth month, and dentition is completed by the end of the second year, but exceptions occur. Delayed dentition is, however, due to defective nutrition, since the development of the teeth advances step by step with that of the osseous system. We would impress upon all parents that the growth of bone tissue is the standard by which to gauge the infant's healthful development. It would be well if every mother consulted, at stated intervals, her family physician as to the character of the child's food, and so modified its nutrition as to furnish what may be missing, rather than waiting until the system is debilitated by perverted nutrition, and diseases appear. That part of the tooth appearing above the gum is called the crown. The portion that is fitted into the socket, a fang or fangs. The main bulk of the tooth is composed of ivory. The crown is protected by a hardened covering called enamel, and the part below the gum, the bone.

This excellent illustration of the two sets of teeth is taken from "Teething and Croup," by Dr. W. V. Drury.

The smaller inside row of teeth are the baby or milk teeth, the outside row the permanent teeth. By comparing these two sets, we get a good idea of the different size and number of the teeth in the child and adult.



1, 1, central incisors. Next on each side are the lateral incisors. Third from centre, canine teeth. Two last of inside row are the temporary molars. 6, six-year molars. 12, twelfth-year molars. 20, wisdom teeth.

At the bottom of the fang there is an opening through which the vessels and nerve for the nourishment of the tooth enter, filling up a cavity in the centre of the ivory. The formation of the teeth begins very early in prenatal life, but they are only partially developed, being enclosed in their follicles, and concealed beneath the gum in the newly born infant. After birth, osseous matter is gradually deposited, the gum is absorbed, and finally the tooth protrudes, or, as it is called, is "cut." These first milk-teeth are twenty in number. They are generally cut in pairs. Those of the lower jaw appear usually in advance of the upper ones. The teeth appear in somewhat the following order: First, one incisor, and, soon after, a second appears in the centre of the lower jaw, and these are followed by two corresponding teeth in the upper jaw; then two more in the upper jaw, and two in the lower, making eight incisors or cutting teeth. The first molars next succeed, two below and two above. These are followed by the four canine teeth, or stomach and eye teeth, and lastly the four posterior molars. There are, however, periods of rest between the successive eruptions of the teeth. Thus a period of six or eight weeks generally intervenes between the lower and upper incisors. The lower lateral incisors then come very soon. A pause of three or four months may now occur before the first molars make their appearance. Another of equal length may occur previous to

the appearance of the canine teeth, and still another before the first dentition is completed by the eruption of the last molars, usually before the end of the second year. Some little time before the appearance of a tooth, the mouth becomes hot and dry, notwithstanding a copious flow of saliva. The gums will look tumid, tense, and shining, while the exact position of each tooth is marked some time before its appearance by the prominence of the gums. There is always more or less irritation of the mouth, manifested by a strong desire on the part of the baby to bite or press its gums against anything it can convey to its mouth. The baby will often be very quiet while the gums are gently rubbed. Nature has wisely ordered this flow of saliva to diminish the inflammation and irritability of the gums, and allay the thirst. To relieve the irritation of the mouth, and allay the thirst, the child will continually fret and cry for its food, and, if gratified, is very apt to overload its stomach, in this way producing indigestion, vomiting, colicky pains, and diarrhœa. Do not neglect to give the teething baby plenty of water, as much as it will take. It soothes the hot, dry mouth and nervous irritation. An ulcerated mouth may occur at this time. Again fever, great restlessness, even convulsions, take place. The digestive organs may be disturbed, every degree of indigestion, nausea, constipation, and diarrhœa being present.

The glands of the neck may enlarge and even form abscesses. In fact, any latent defect of the infant's system may spring to view during this important period. Anything thus arising should be referred to the physician. We would impress again that the more nearly perfect the nutrition of the child has been, the freer dentition will be from ailments of all kinds whatsoever. It is quite customary to give an infant some hard substance to bite upon during teething. This, however, is wrong, for these hard substances tend to bruise and inflame the gums. Rather give the baby a piece of dark-colored India-rubber in the form of a ring or cross. The elasticity of the rubber prevents injury to the gums. Lancing the gums is little employed to-day compared with former years. If ever necessary, it should be done by the physician, for if not properly done the gum may close again over the tooth, and harden, and be an increased irritation rather than a relief. The food in teething, particularly, claims care equally with air, clothing, exercise, and cleanliness. Disordered dentition and distressing complications may be avoided by careful attention to the infant's nutrition in the months preceding dentition, as well as during the period. If the food is well looked after, teething will be uneventful, and seldom require a physician. Neither should a child having no teeth be allowed to go month after month, after it is six months of age, without attention from a physi-

cian as to its food. Delayed dentition always means difficult dentition, with many ailments. If the baby does not teeth when it ought, do not wait for it to get sick before consulting the doctor. Here the golden maxim that "prevention is better than cure" is very applicable.

HAND-FEEDING.

"And what did he live on? Water cresses, or perhaps water gruel and water milk. Too many land babies do likewise."

THE best possible food for an infant is human milk. But infants, for various reasons, legitimate and otherwise, are often deprived of their birthright of the maternal founts. When a mother cannot nurse her baby, and all mothers cannot, then the question arises, With what shall the baby be fed? What is the best artificial food for the baby? That depends on the child, and upon this particular child; for nowhere is the adage more true "that what is one's food is another's poison" than in the feeding of infants. No set rule can be laid down. What agrees with one will not with another. We must not alone familiarize ourselves with the various infants' foods; but study the child itself carefully, and try that which will seem to nourish the baby in question. Success in infant-feeding is dependent on the ability to individualize the child and select the proper food for each case. One food will not do for all babies. Some it will feed and nourish, and others it will surely destroy. On the average, to choose a food for a baby will take more time, thought, and attention on the part of a physician than to select the medicine for half-a-dozen sick children. Artificial feeding for

any infant is an experiment, the results of which experiment cannot be determined in a day or two. If we expect to make this experiment a success, the infant must be closely watched; for results are often more satisfactory for a day or week than for months. The hand-fed infant must be under strict surveillance from week to week, and month to month, to determine the adaptability of its chosen food. We must try different kinds of food till we find what will nourish and agree with the baby. Infant-feeding is a serious business, and poor selections not alone are a detriment to its growth and development, but a menace to its life. It is pre-eminently the intelligent management of the nutrient that enables the young baby to breathe, live, and grow. In fact, it is proper or improper nutriment that makes or mars the coming individual. In the case of a young infant deprived of the mother's milk, the food substituted should be made to correspond with human milk as closely as possible, in both its chemical constituents and physical properties. A great advance has been made in our knowledge as to what we are to copy from human milk, and what we must achieve in preparing a substitute food. There is no one perfect nutriment for human babies as a whole; but it is the changes in the various constituents of the human milk from time to time which meet and satisfy the demands of growth and development to such a degree that erroneously we have come to look upon human milk as one of unchanging elements. The

infant at the breast receives for its nourishment a fluid that is fresh, sterile, neutral, or faintly alkaline, at a temperature of from 98° to 100° F., furnished in an amount proportionate to its age, and containing all of the properties necessary to the development of bone, muscle, and fat, and the growth of the infant until the first teeth are cut. It is this fluid that we should copy in every possible detail, when we undertake to prepare a substitute food. One may judge that art has outdone Dame Nature in the feeding of infants from the number of infant's foods in the market, each one in itself perfect, we are told; and from the artistic representation of beauty and perfection of physique with which the manufactures adorn their advertising pages, one would suppose that all there is to be done for an infant deprived of its mother's milk is to give a few spoonfuls of this or that particular food, and the child will never know the loss of the mother's breast. Each manufacturer claims his food to be the best, or each dealer who may have a stock of one kind on hand affirms his the only kind that should be used. Nothing gives stronger evidence of the insufficiency than the great number of infants' foods, and the new ones that are being constantly put on the market, with the sending broadcast of glowing circulars extolling the merits of each new one as superior to all others. None of them are perfect foods, and at the best are poor substitutes for human milk. These foods may contain the right proportion of chemical elements, but they all lack the

vitalizing force and influence of the mother's nurse. Cows' milk is the substitute food most commonly used, but the problem demands for its solution a modified milk. The milk of asses and goats corresponds more nearly to human milk than that of the cow; but because cows' milk is more accessible, and in many instances forms the only substitute which can be procured easily, it is used. Fresh cows' milk, when properly prepared, is an acceptable substitute for breast milk. When we compare human with cows' milk, it is the great differences, and not the similarities, which surprise one. What is human milk? The answer is not an easy one. The fact that breast milk necessarily varies with the interval since parturition, changes with the nutrition and constitution of the mother, and from numerous other conditions, will account in part for the variations of its composition noted in different analyses. For like reasons variations are noted in cows' milk. We have no desire to enter into the details of the collections of samples of human milk and the different analyses, sufficeth to say from reliable authority we take the following tables for comparison.

Human Milk.		Cows' Milk.	
Reaction . .	slightly alkaline	Reaction . . .	slightly acid
Specific Gravity .	1028 to 1034	Specific Gravity .	1032 to 1036
Water	87 to 88	Water	86 to 87
Total solids	13 to 12	Total Solids	14 to 13
Fat	3 to 4	Fat	4
Albuminoids	2 to 1	Albuminoids	4
Sugar	7	Sugar	4.5
Ash	0.2	Ash	0.7

We see the solids are made up of fats, sugar, ash, and albuminoids. These latter may be divided into liquid albumen and casein or cheese. We find the sugar contained in each is the same in composition and behavior. The same is practically true of the ash, fat, and liquid albumen; but the casein is radically different. The casein of cows' milk coagulates in a heavy dense mass, while breast-milk curds are light and flocculent. The casein of cows' milk, as a rule, traverses the infant's alimentary canal, and may be found unchanged in the fecal discharges. It is therefore a source of constant irritation, and often causes diarrhœa and intestinal inflammation. Some expedient must be resorted to in order to make the casein of cows' milk more nearly resemble that of breast milk, and not unduly tax the digestive organs of the infant. We find that if milk is diluted with five times its bulk of water, the casein curds will resemble more nearly those of human milk in fineness; but this means a great reduction in fats and sugar, which are essential factors in the baby's nourishment. Again, adding starch to cows' milk will cause the casein to curd in loose, friable flakes; but infants cannot digest starch at all when young, and after a time, when they can, they require different elements for the building of bone and muscle than the non-nitrogenous ones of starch. To sufficiently diminish the proportion of casein in cows' milk, and render it so it will curd in loose flakes more like to those of breast milk, has been the aim in preparing infants' foods.

And in different ways it has been accomplished; but as a result babies have been fed upon mixtures containing too little nourishment, deficient in fat and sugar, and they have been obliged to distend their little stomachs with two or three times the bulk of food that they were intended to take at one time. Other important factors in the preparation of cows' milk are to change the acid to an alkaline reaction, and to render the product sterile. A noted physician once remarked, "that the fact that a calf has four stomachs, while a baby has one, and that a very little one, ought to be sufficient evidence that the food elaborated by nature for the calf is scarcely suited to the infant." Besides the calf begins active exercise as soon as it comes into the world. The baby lies helpless for months. In substituting cows' milk for an infant's nourishment, great attention should be given, first, to the milk itself; second, to its modification. To secure good milk, select a healthy young cow of good breed. No milk from a cow sick or affected with any disease, as tuberculosis, anthrax, or any disease of the udder, should be taken. The cow should not be milked when over-heated or immediately after driving from pasture. Milk should not be used from a cow for three weeks after calving. A "new-milch cow" has less casein in the milk, and for this reason is best for the baby. Never, if possible, choose milk from a cow that has been milked longer than three months. The cow should be fed upon her natural diet of hay or grass and pure

water. No milk should be used from a cow fed on distillery slops or brewery grains. Care should be taken that the cow does not eat wild onions, wild carrot, strong turnips, or any noxious weed. That a healthy cow, allowed to feed on rich meadow grass, and in the evening carefully housed, cared for, and given a diet of meal and hay, will yield a rich creamy milk, is evident. On the other hand, it is equally plain that an unhealthy cow, fed on distillery swill or brewery refuse, and improperly housed and cared for, will yield a thin milk without nourishing qualities. The milk should be received and kept in absolutely clean vessels; and, as milk rapidly absorbs odors, it should be kept in a place where no material can communicate any odor to it. The success of cows' milk, either alone or as an adjunct to other nourishment, depends upon the methods of keeping it until it is ready for use. Milk is of all foods most prone to decomposition, and demands the greatest care and the most scrupulous asepticism to preserve it pure for the baby. Cows' milk for the infant in the country, and for the infant in the city, are two very different fluids. In the one case, fresh, unadulterated milk from a selected cow stands for two or four hours in a cool place, when the upper part is drawn off, being richer in fats, diluted with pure water or barley or oatmeal water, sweetened with sugar of milk, and we have a mixture not unlike mothers' milk, upon which many town and country babies thrive. On the other hand, milk, perhaps

mixed milk from several cows, adulterated or unadulterated, is churned in the cars to the city. Then more thoroughly churned in the wagons over rough paved streets, distributed in many cases from doubtful cans by persons of more doubtful cleanliness, flavored, maybe, by the filthy pipe or puffing cigar of the milk-man, and received in dishes of doubtful cleanliness, placed, perhaps, in a food-chest or so-called refrigerator, exposed to the atmospheric contact of other articles of food; and is it to be wondered at that this stale churned milk, nearly or quite sour and poisonous with bacteria, is rejected by the infant as a food, and fails utterly to nourish it? It is a fact that city children with whom milk does not agree, have been taken to the country and found to thrive on milk taken warm from the cow. The ease with which milk ferments, and can be apparently fresh, and yet on the point of "turning" when taken into the stomach, which condition will find in the infant's stomach many conditions for such change and development, has given rise in the last few years to the process of sterilizing or pasteurizing milk, — a process which has proved a great boon to many babies, particularly city babies. To sterilize milk, a series of bottles containing enough for one feed, and capable of standing heat, are fitted into a frame, and when filled with milk are placed in the water for boiling. The mouths of the bottles are closed by rubber corks. Through each cork passes a glass rod to close the aperture after boiling. The bottles

have the usual feeding-attachments. The bottles are immersed in water to the neck, and the water made to boil. When the fluid has expanded, the glass rods are forced into the corks, and the bottles completely closed. The water is kept boiling for thirty-five minutes, when the bottles are taken out and allowed to cool. When required for use, a bottle is immersed in water, which is brought to the temperature of the body (98½° F.), the cork is quickly removed, and the nipple inserted. Milk thus sterilized will keep for months without change. Different apparatuses for the sterilization of milk can now be bought anywhere. We see at once that the principle involved in sterilization is to destroy the germs of fermentation. The preparation and administration of sterilized milk can be managed in any well-regulated household. The boiling of milk for twenty to thirty minutes, under slight pressure, in small bottles hermetically closed, is all that is necessary to practically carry out the principle involved in sterilization. Sterilization is something more than boiling milk in the ordinary way. There are many different apparatuses for the sterilization of milk in the markets, which can be bought reasonably cheap anywhere; but, with a little effort, a simple apparatus can be arranged to answer every purpose of the patented ones. The simplest plan is to take a tin pail, and have made a movable, false bottom, perforated with holes, and having legs half an inch high, to allow the circulation of the water. Take bottles for the milk

that the ordinary nipple for sale everywhere will fit. Do not fill the bottles entirely full, but allow for the expansion of the hot fluid, and plug the bottle with absorbent cotton, or surgeon's cotton, which can be procured at any drug-store. Set the bottles on the false bottom, put sufficient water in the pail to reach the level of the surface of the milk in the bottles. A temperature of 150° F., maintained for half an hour, is sufficient to destroy any germs likely to be present in the milk; and it is found that raising the temperature to 155° F., and then allowing to stand in the heated water for half an hour, insures the proper temperature to keep milk sterilized, or rather pasteurized, for twenty-four hours. The temperature should not be raised above 155° F., otherwise the taste and quality of the milk will be impaired. A hole may be punched in the cover of the pail, a cork inserted, and a chemical thermometer put through the cork so that the bulb dips through the water. The temperature may thus be watched without removing the cover. If preferred, an ordinary dairy thermometer may be used, and the temperature tested from time to time by removing the cover. When a feed is needed, the cotton plug is removed, and the nipple inserted, after the milk has been brought to the proper temperature by immersing the bottle in hot water.

Many physicians prefer to sterilize milk by prolonged, moderate heat, rather than a high temperature, believing that boiling devitalizes milk and changes fluid albumin to its dis-

advantage as a food compound for infants. Either method may be tried, if the milk seems not to agree with the infant. But, alas! many babies do not thrive on sterilized milk. At the best, it is a dead mass compared with the sterile living fluid taken from the mother's breast. Sterilized milk will often be found to be the improvement needed to help the country baby to a better growth.

We cannot too strongly urge upon all who are compelled to prepare food for infants the great importance or necessity of using only water that has been boiled, — sterilized water. Sugar of milk is preferable to the ordinary cane sugar of domestic use, for sweetening the baby's food. Cane sugar is very apt to cause fermentation in its digestion; this is more apt to be the case if a little too much has been used. In discussing how cows' milk may be modified as a food for a baby, no specific rule to prepare the milk, or any other food for that matter, can be given. No two infants can have it prepared alike; but by a little experimenting and close observation one can decide the right strength to agree with the child. For very young babies, the milk is reduced one-half to two-thirds, with sterilized water, and sweetened with sugar of milk. Care must be taken in selecting the milk. As a rule, Jersey milk contains too much fat to agree at all with babies. There need be no hesitancy in changing from one cow to another, even if all the requirements for a good milk are met; for it is the experience of all that the milk of one

cow may be taken with greater ease by the infant than that of another, and that without any perceptible reason, so that we would emphasize the fact that when a choice of cows is easy, before abandoning cows' milk altogether as a food for the infant, try another cow, or several for that matter. As the child grows older, the proportion of water is gradually decreased. The majority of infants, by the time they have reached five to seven months, will not find sufficient bone elements in cows' milk for teething, and then the milk may be reduced with barley or oatmeal water. Oatmeal will be found most beneficial in those infants with a tendency to constipation; barley in those who tend to diarrhœa. Care must be taken that the starch of the barley and oatmeal is sufficiently cooked. Oatmeal water is prepared as follows; take an ounce of oatmeal to a quart of water; cook slowly in a double-cooker for four or five hours; strain and add in proportion of one-third to three-fourths of milk. For barley, wash the barley in two or three waters; soak half an hour in a little lukewarm water; stir and add without draining to boiling water; use an ounce of barley to a pint of water; cook for three or four hours; strain and use same as oatmeal. If the oatmeal or barley is too thick to strain readily, thin with boiling water. Barley is prepared for the Children's Hospital of New York in the following manner: Robinson's barley flour of Akron, Ohio, is taken and subjected for a long time to dry heat. This is accomplished in one of two ways. The

flour is tied in a bag and boiled several days (the hardened outer part of the barley thus prepared is thrown away), or the flour is put in a double-cooker and boiled for a week. Thus prepared, this flour will keep for months. A spoonful is made in a thin gruel, and used in same proportion as oatmeal water to dilute the milk. Sometimes by salting the barley, oatmeal water, or even the milk will aid in its digestion. Should milk mixed from several cows be used, or only that from one? When a choice of cows is easy, we prefer that from one; but if a desirable one cannot be found, then the milk from several cows may so modify one another as to produce a quality suitable for the infant. We believe the mixed cows' milk, as a rule, will need to be sterilized. Some infants thrive best on diluted cream; others again on skimmed milk. Cows' milk may be farther modified by partially digesting the casein by the use of peptogenic powders. Various kinds are in the market, the choice of which should be by a physician. We cannot advocate the adding of lime water to milk to overcome its acidity. It often can be used to advantage for a few days in case of indigestion; but its continued use, day after day, can but be injurious, and should be prohibited. To make use of cows' milk for infants the aim will be, —

1. To get rid of the excess of casein, which averages two to one of human milk.

2. To curd the casein in loose, flocculent flakes, easy of digestion by the infant.

3. To overcome the acidity due to lactic acid.

4. To have the milk free from bacteria, which are a cause of malnutrition and diarrhœa.

After these modifications, we must still have a fluid whose chemical constituents correspond to human milk. The difficulty will be found with the first three. How these changes are brought about we have already stated, but will recapitulate.

We overcome the first by the dilution of the cows' milk with water; the second, by adding large quantities of water, the addition of starch, or peptogenic powders; the third, by protecting milk from contamination and by sterilization.

Moreover, we find in these modifications that the very young infant cannot digest starch at all, and after a time, when it can, it requires more nitrogenous elements in its food, from which to build muscle and bone, than a starchy food of non-nitrogenous ones, which only fattens. In brief, we must change the quantity and quality of the casein without interfering with the development of bone and muscle by having starch a main part of the food. These results are not reached by milk alone. The majority of handfed infants who receive nothing but milk do not teeth when they ought, and consequently sicken sooner or later; hence we impress that cows' milk alone as a food, beyond the sixth month, is dangerous, for the great quantities of water it requires to render the casein digestible take out all the bone elements from the

milk; and it is advisable at this time or earlier to begin the use of barley, graham, or oatmeal water, as the forms of starch easiest of digestion by the infant; when the infant can take it, the oatmeal is a better bone builder than the barley or graham.

Condensed milk. Condensed milk is prepared thus: cane sugar is added in large proportions to cows' milk, and evaporated in vacuum pans under high temperature. It contains a small amount of casein and much fat, and usually an excess of sugar. The small amount of casein is the reason it often agrees with very young babies. Children grow fat on it, but do not make bone; and while they appear well nourished, they really do not thrive so well as they look. The excess of sugar is apt to cause fermentation. The more common brands are Borden's, Eagle, Swiss, the Alpine, and the Swiss preserved milk. Of necessity the composition of condensed milk must vary according to the season, breed, and care of the cows from which it was obtained. Good condensed milk when poured from a spoon should be glossy, ropy, or stringy like a heavy syrup. The color should be that of cream; but the color varies according to the season of the year in which the milk is condensed, the same as milk not condensed varies. Thickness varies with age. It is often prepared with skimmed, sterilized milk instead of water. Condensed milk gives plumpness, but it is not as good for bone and muscle as simple milk. We come now to consider

the various patent infants' foods. Their name is legion. Each is a perfect food in itself, we are told, and baby will need no other. Blessed, thrice blessed, if such was the case; but alas, alas! babies are perverse creatures, whether it is because they are so like their mothers, or occasionally take after their fathers, or neither, we have not been able to determine. Nevertheless, we know many babies will not thrive, and sometimes not even live on these various patent foods; and this is the reason that year after year we have numerous new "perfect substitutes" for human milk. For the comfort of the manufacturers of these foods, we are willing to admit the perverseness is on the part of the babies, and are glad to acknowledge all these foods contain some good feature, and that the best minds are devoting much care and research to this one of substitute feeding; but the problem as yet is unsolved, though the search goes on with increasing ardor. The patent foods divide into three classes:

1. The Milk Foods; 2. Farinaceous Foods (starchy foods); 3. The Malt Foods, often called Liebig's Foods.

The milk foods are produced by combining the cooked cereals with condensed milk. The most common are Carnick's Soluble Food, Malted Milk, Nestle's, Anglo-Swiss, American Swiss, Gerber's, etc. All of these preparations aim to provide the necessary elements for the building of bone, muscle, and fat in the infant. They vary from each other as to the quantity of fats, sugar, and albuminoids.

Some use wheat in their manufacture; others oats, and others both wheat and oats. The proportion of milk used varies with the different brands. Some have plain condensed milk, others partially digested cows' milk.

The farinaceous or starchy foods are composed wholly of wheat or cereals. Chief among these are Imperial Granum, Wells and Richardson Co. Lactated Food, Ridge's, Blair's Prepared Wheat Food, Robinson's Patent Barley, etc., etc. These foods contain no milk. From wheat and other cereals are built up the chemical constituents needed in the albuminoids of the body. Fat, sugar, lime salts, and other needed constituents are added until a food is presented complying nearly as possible with the chemical constituents of human milk. The starch is partially prediges ted and in the form of dextrine. The Liebig's or malt foods differ from the cereal foods in their mode of manufacture. The starch in these foods is converted beyond dextrine and given in the form of malt sugar. The more common of these are Horlick's, Mellin's, Hawley's, etc. Most of the patent foods are prepared with milk when given to the infant, a few with water. That there is a superiority of certain of these foods over others, chemical analysis has amply demonstrated. The usual method of comparing these foods is by enumeration of their chemical constituents, and that which most closely approximates to human milk is best adapted to infant nutrition. That this is but a half a truth is again and again demon-

strated. Milk from the mother is a living fluid, and the patent foods are a dead mass. When the albuminoids have been brought to a proper standard in their manufacture, they are found deficient in fats or sugar, and especially in the lime salts which are so essential to bone building. Again, they all introduce some new element, such as starch, dextrine, malt sugar, cane sugar, or what not, which Nature did not consider necessary, and for the care of which has made no provisions in the infantile organization. All presume some digestive capacity which the baby lacks. Again, it is not enough to furnish a food that is easy of digestion. It must at the same time be nourishing and furnish the proper relative amounts of the different food principles. The more one studies human milk, the more one realizes the difficulty it is to make any mixture, with or without milk, that introduces anything like all these necessary elements in as simple a composition as the mother's nurse. There are excellent qualities in all of these foods. They admit of endless variations and combinations. They have proved life to many babies, and death to others. They have helped to piece out failing milk in many mothers; but that any one of them is a perfect and "only substitute for human milk," we emphatically deny, and appeal to the babies for confirmation. We trust we have clearly set forth some of the difficulties attendant on the choice of a food. When the infant is deprived of the mother's milk, who should select the food. Emphatically, the family

physician, whose education and business it is to study the requirements of the infant and the human system, is familiar with the chemical constituents of the different foods, familiar with the conditions of climate and its modification of food, and recognizes at once the temperament and constitution of the baby suggestive of the peculiar requirements of its system. These, all these, must enter into the choice of a food, if we would have the choice a success. Our cemeteries are full of too many little graves, a testimony to the indiscriminate feeding of the baby on first this and that food or some preparation that agreed with the neighbor's baby, when what was wanted was a food for this baby, and not the neighbor's baby. We repeat that it will take more time, thought, and attention to choose the *food* for *one* baby, than to care for *half-a-dozen sick* babies. Again, the physician must have an opportunity to watch the results of the baby's nutrient, if the requirements of the baby's system are met and it keeps well. Nine-tenths of infantile sickness come from improper feeding. Prevention here is better than cure, if the best interests of the baby are subserved. It is one thing to bridge over a dangerous period in an illness on a chosen food, and altogether another matter for the infant to live on that food month after month. This plan is not in the interest of the physician but of the babies, as we know the former are more fitted to decide this momentous question than parents, nurse, relatives, or neighbors. Choice of food or quality is not the only factor to be

considered in infant feeding. The quantity, frequency, and conditions under which the food is to be taken are equally important elements for success.

Cleanliness is the first condition in feeding after the choice of food. If a bottle is used, the food should be freshly put in it for each feed. Food that has stood in a bottle should not be used. Choose bottles without angles or letters, and with a short neck so they can be easily cleansed. Particles of milk or food will tenaciously adhere to the bottle and nipple, particularly if sour, and to thoroughly cleanse takes care. The smallest particle of milk left behind in a state of decomposition will be quite sufficient to cause trouble with the suckling. No bottle, cup, spoon, or nipple, or any other utensil should be used for the baby unless scrupulously clean, and not used the second time without washing. Bottles when not in use should be immersed in clear water in which a bit of soda is dissolved, then rinsed with clear water just before using; several feeding-bottles are a good plan. Discard nipples with the long nursing-tubes. It is impossible for one to keep them clean. Choose dark-rubber nipples with rather a small hole, so the baby may not nurse so fast as to choke. Black rubber is purer than white, as the latter contains injurious ingredients. The position of the child is important. A child should not receive its food lying down; but should be supported in an easy semi-erect position, the same as in the natural one of nursing from the mother's breast.

The practice of handling and jolting infants soon after taking food is harmful. They should lie quietly for half an hour. The baby should be fed with regularity. Just the exact time between feeds will vary with the particular child and the age; but let the meals be given systematically and with regularity. Handfed infants are apt to be fed with more regularity than nursing ones. On an average, two to two and a half hours for babes under three months of age through the day, and twice at night from 10 P. M. to 6 A. M.; after this from three to three and a half hours through the day, and once at night. Weak babies who take a very small amount of food need to be fed oftener than the strong, healthy ones. Food should not be given immediately before or after the bath. Quiet, and if possible sleep, should follow eating. How often a child is put to bed with a large bottle of food with a long tube! It nurses a few minutes, then sleeps and nurses again. It holds the nipple in its mouth, setting up a fermentation of the milk in the nipple to contaminate all that comes afterwards. Even if the food is all right, the manner of feeding makes it all wrong. The quantity of food given is a very important factor in the nourishment of the baby. As a rule, handfed infants are overfed. Too frequent feeding is often a cause of overfeeding. Quantity depends upon the constitution, temperament, and age of the infant, and many physicians consider the weight an index to the amount of food that should be given. To overfeed is perhaps wiser than not

to give enough. Nature has some provision for caring for too much food, but not for lack of nourishment. The organs of digestion in infancy are much more delicate and sensitive, and therefore more easily deranged than in later years. The stomach is small and sensitive, and too much food is quickly ejected by vomiting. The usual rules that "the child ought to drink until it has enough," "if the child vomits give less; if it is hungry give more," are indefinite and uncertain. The exact quantity must be determined by the condition of the child and the strength of the food. The stools are one indication. Just what these indications are will be found under the chapter on Bowels and Kidneys. Sleep and quietness come for a share of consideration as to quantity of food. Accurate measurement of many stomachs has shown that the average baby at birth has a stomach capacity of one ounce, and not until it is about six weeks old does this capacity reach two ounces. The child must be ten months old before it can accommodate eight ounces, the full measure of an ordinary nursing-bottle. On an average, babies are given too great quantities of poor food. Less quantity and better quality is demanded. The following table, based upon the weight of children, has been used as a standard for one of the leading children's dispensaries of New York city. As a rule, too much food leads to vomiting, colic, diarrhœa; too little food, to constipation and gradual loss of flesh. The weight, not the age, of the infant determines its food properly. Weigh the naked baby and determine its food by this table.

THE WEIGHT, NOT THE AGE, OF THE INFANT DETERMINES ITS FOOD PROPERLY

Child's weight in pounds	No. of bottles	Size of bottle	AMOUNT			TIME OF FEEDING			
			Of milk	Of gruel	Of sugar	How often	In twenty-four hours	From 6 A.M. to 6 P.M.	From 6 P.M. to 6 A.M.
6, 7, and 8	I.	3 oz.	1 oz., or 2 tablespoonfuls	2 oz., or 4 tablespoonfuls	½ teaspoonful	1 bottleful every 2 hours	8 bottles	6 bottles	2 bottles
9 and 10	II.	4 oz.	1½ oz., or 3 tablespoonfuls	2½ oz., or 5 tablespoonfuls	⅓ teaspoonful	1 bottleful every 2 hours	8 bottles	6 bottles	2 bottles
11, 12, 13, and 14	III.	5 oz.	2½ oz., or 5 tablespoonfuls	2½ oz., or 5 tablespoonfuls	¾ teaspoonful	1 bottleful every 2½ hours	7 bottles	5 bottles	2 bottles
15 and 16	IV.	6 oz.	3½ oz., or 7 tablespoonfuls	2½ oz., or 5 tablespoonfuls	¾ teaspoonful	1 bottleful every 2½ hours	7 bottles	5 bottles	2 bottles
17 and 18	V.	7 oz.	5 oz., or 10 tablespoonfuls	2 oz., or 4 tablespoonfuls	1 teaspoonful	1 bottleful every 3 hours	6 bottles	5 bottles	1 bottle
19 and 20	VI.	8 oz.	All milk and 1 teaspoonful of sugar			1 bottleful every 3 hours	6 bottles	5 bottles	1 bottle

WEIGH THE NAKED BABY, AND THEN DETERMINE ITS FOOD BY THIS TABLE

The following table is based on nursing infants, weighing naked, before and after nursing the mother, to determine the quantity taken, as the natural index to the quantity that should be given when deprived of mothers' milk.

First month	half an ounce to two ounces.
Second month	one to three ounces.
Three to six months	two to four ounces.
Six to twelve months	three to five ounces.

Too much of the right quality will create an abnormal craving. Often the craving is for drink. Handfed infants are more thirsty than nurslings. It is the amount of food that is digested and assimilated that constitutes its nourishment, rather than the quantity. Close observation as to this point will determine the right quantity for each baby, with its weight and age as a starting-point from which to make our variations. What should be the temperature of the food? The normal one of the human body, viz., 98½° F. This is the temperature of human milk as it is nursed from the mammary gland. In preparing cows' milk that has not been sterilized, it is better to heat gradually, thus driving off a portion of the lactic acid of the milk rather than adding hot water. Too hot or too cold food interferes with digestion. When food seems not to agree with the baby, the manner of feeding and quantity should be looked after before changing the quality of the food. After this lengthy discussion on the choice and conditions of the infant's food, now

comes the all important question, how shall we know when baby's food is right or wrong? The selection of food we have insisted be by the physician, because we must know the ingredients as well as the physiological wants and the weaknesses of our babies. The physician, by his professional training and duties, is best fitted for this task. After a certain brand of food is chosen, we must know not only that the child lives, but that it thrives and develops. Perfect nutrition is shown by the conditions of the digestive organs as indicated by the stools, presence or absence of vomiting, colic, the color of the mucous membrane of the mouth, the general contour of the abdomen, and by the nervous system as shown by the sleep. The chances are the baby who does not sleep is not well nourished. Again, right food is shown by systematic increase of weight, and the most important indication of all, the growth of bone, as shown by the cutting of teeth at the proper age, and before the eruption of the teeth by the closure of the fontanelles. The normal standards of these different indications will be found in the various chapters on these subjects. In closing this most important topic of "The Baby," we would remind all that "Hygiene, the fair goddess that presides over the well-being of all mankind, and with especial care over the cradle, must not be offended, else the consequences will be disastrous." A baby is as its food is; a baby is as its general care and hygiene are.

BOWELS AND KIDNEYS.

"Her child was a healthy and happy specimen of its kind in the city."

THE frequency and character of the baby's stool is an index to its digestion and general health. To recognize an unhealthy condition, one must know the healthy. As a rule, the child will pass a stool within the first six hours after birth, and sometimes several. The first stools are black, waxy, and viscid, and known as meconium. The bowels continue loose for several days to a week. The first milk secreted by the mother, the colostrum, acts as a laxative, the stool gradually changing by the end of the first week to a yellow color of a semi-fluid consistency, milk stools so-called. A healthy baby will have one or two of these stools a day until three months old, when they average one a day. If the baby does not stool within twenty-four hours after its birth, refer the matter to the physician instead of letting the nurse begin to dose it with castor oil and what not. The physician will probably recommend a small enema of warm water with perhaps a little milk added. As long as milk enters chiefly into the baby's diet, the stools should be of a

yellow color like to the yolk of an egg, and of a semi-solid consistency. Most children when three months old can be put on a toilet chair to stool. Pad the chair so that it will be comfortable for the child to be bolstered in, and easy for the back. Regularity will do much toward the infant forming a healthy habit of action. We know one young mother who regularly held her little babies out over some toilet paper after they were a month old, and until old enough to be put in a chair, thus saving much labor. Constipation in the infant is not as serious a condition as diarrhœa, nor does it receive the attention it should. It arises from two causes, malnutrition and actual disease of the liver. It is only with the first we have to consider. Because infants who suffer from constipation are stronger than those who have diarrhœa, the mother does not seek professional advice. This is wrong. The one is as important as the other. The constipation may be caused by excessive quantity or poor quality of food. The powers of assimilation in the infant are not sufficient to appropriate the quantity of an adult's meal. If the quantity is too great, or the food hard to digest, it will pass into the intestines undigested, and prove a source of obstruction and constant irritation. Particularly is this true of the dense curds of casein. As the infant becomes more constipated, these lumpy, cheese-like curds form the large part of the stool. Do not allow the habit of giving irritative laxatives, like castor oil, sulphur, aloes, or using suppositories of soap

and paper to move the bowels, but rather insert the finger, (have the nail short) well oiled with vaseline or olive oil, slowly and carefully into the rectum. This can be done without causing any pain or discomfort. As soon as the effort on the part of the child to evacuate the bowels is observed, withdraw the finger. If the efforts of the child do not expel the finger and the fæces, as it generally does, then slowly and gently stretch the anus in the opening. If the hard large mass is not entirely expelled, but partially, place a finger-tip in the sulcus just back of the anus and push it forward, when the stool will slip out. These simple methods will strengthen the muscles of the rectum, and help to expel the contents without aid. Babies often have fissures form in the rectum. This will be known by the cry of pain at and after stool, or by a little blood on the stool. A little vaseline applied by the finger after the stool will help to soothe and heal.

Diarrhœa is caused by chill and malnutrition. The undigested food passing into the intestines is a source of irritation. Fermentation occurs and we have diarrhœa, dysentery, and other forms of inflammation. The stools often resemble chopped eggs; hard white curds of casein or lumps of cream may be seen. The stools may be sour smelling or green from acid fermentation. Very putrid stools show excess of albuminoids. The fact that the stools of a handfed infant are stronger and more offensive in smell than those nursing

the breast, shows the difficulty of giving a food like to mother's milk. A habitually constipated infant should not be neglected, for the malnutrition will certainly end in diarrhœa. The malnutrition of the system unfits them to bear any additional force, and such babies melt away like dewdrops when disease attacks them. Neglect not the malnutrition shown by continual constipation. It is Nature's cry for a better food for this child. "Nature is stern in her edicts. Her laws cannot be violated with impunity."

Kidneys. The newborn infant should urinate within a few hours after its birth. If not, it will become restless and fretful. The attention of the physician should be called at once to such a state, when in all probability a hot cloth or a hot bath will be ordered to the lumbar regions and over the bladder. Handfed babies urinate more often than those fed on human milk. Too much cane sugar in the food may cause too frequent urination or an acid urine which will inflame the baby, and cause it to fret and cry. Do not let the baby lie in a wet or soiled napkin. It is cruel to have so helpless a being as a little baby thus neglected and caused discomfort and suffering. Too dark stains of the napkins, or any sediment of any kind on the napkin, needs attention at once.

Also any retention of the urine must not be neglected. The spasm of bladder, or urinary colic, is most distressing, the baby throwing itself back and straightening its limbs;

setting the baby in as hot a bath as can be borne will do no harm until the doctor arrives. The distress is so great, and the cry one of such suffering, with the retention or infrequent urination, that it is not easily confounded with ordinary colic of the stomach and intestines.



RIGHT.



WRONG.

HOW TO LIFT A BABY.



RIGHT.



WRONG.

HOW TO HOLD A BABY.

POSTURE.

"Cheek or chin, knuckle or knee,
Where shall the baby's dimple be?
Where shall the angel's finger rest,
When it comes down to the baby's nest?"

THE positions in which a baby is kept, and the manner in which it is handled, are factors bearing upon its health and comfort, and are to be considered in the baby's hygiene. In its helpless and dependent condition the babe must remain where placed. Its soft and rapidly growing muscles and flexible bones are easily affected by pressure, and may be so modified as to influence its health in future years. For instance, the baby who continually sucks its thumb, not alone causes a deformed thumb, but the weight of the arm on the infant's chest as it sleeps produces a depression of the ribs in the line occupied by the arm when the thumb is placed in the mouth. This depression may so change the contour of the chest as to affect the lung capacity in after years. Care enough is not bestowed in handling the infant. How often we see some thoughtless nurse lift them up by an arm, or by placing the hands on each side of the chest immediately below the armpit. This is wrong, to continually lift the

infant by this side pressure. The many times a day a baby is thus lifted has a tendency to decrease the lateral diameter of the chest, for in the daily repetition of this pressure the soft, flexible ribs are moulded, and as a result we will have a narrow chest, known as the "pigeon chest." This same result may be obtained by too tight bandaging, preventing the free entrance of air into the lungs to expand them; and any cause which obstructs the entrance of air into the lungs may lead to changes in the highly flexible chest which will result in a "pigeon chest."

The correct way to lift the infant or little child is to place one hand under the buttocks, and the other, in front or behind the chest, aids in supporting the weight, and at the same time steadies the child in a comfortable position. One has but to compare the general outline of the chest in children of two and three years of age with that of the new-born to be convinced of the changes produced in its form by careless and improper handling, changes which can but be harmful to the vitality and strength of the individual. We all know how the "flat-headed Indian" changes the shape of the skull by binding a weight on the forehead. We have seen infants' heads misshapen from lying too long on the back. Change the position of the young infant from side to side, and from back to side, to relieve the soft muscles and flexible bones from continued pressure. Bow legs are produced by the child habitually sleeping cramped up, by too bungling a

napkin, or by standing the child too early on its feet. Spinal curvatures are begun by having the little one sit for hours tied in a high chair, or other like posture. All adults know the soreness and numbness that comes to any muscle when too long confined in any one position. What must the poor babies suffer who are carelessly left for hours in one posture, until their tender muscles are numb with compression! Again, rough or too much handling will make the muscles sore. All these interfere with its growth. Care should be taken not to leave the baby too long in one position. Imprisoned for hours at a time in a high chair, the circulation of the lower limbs can be interfered with to such an extent that the muscles may degenerate, producing late or defective walking. The shape of the nose or ear can be changed perceptibly by gentle pressure day after day.

Again, posture may affect the digestion and circulation as well as the muscles. The semi-upright position for feeding, or when at stool, are promoters of healthy action. The habit of patting the buttocks in infants to quiet to sleep, attracting blood to these parts, causing unnatural sexual development, is a posture to be avoided. Quiet, prolonged sleep for the infant is only procured in a comfortable posture, lying straight, with freedom of movement for arms and legs, the head slightly higher than the feet. The muscles of the feet are often deformed by too narrow and too short shoes, giving a stumbling gait. Awkward walking may arise from too long

or too short a stride. A long step produces a flat foot and a rocking gait, too short a step a waddling gait. Rocking movements, on the whole, are not good positions for the baby. Who has not seen the crying baby put in the crib and rocked violently until forced to be quiet by the dizziness produced? Look out for the baby's comfort, for whatever makes the baby comfortable tends to its health and future happiness.



OUT OF DOORS.

EXERCISE.

"What do they in Babyland?
Dream and wake and play,
Laugh and crow,
Shout and grow.
Happy times have they."

BABIES, like plants, need sunshine and pure air. Nature requires and provides that the tender frame be nourished with food, air, warmth, light, sleep, and exercise. The free ventilation of nurseries and the sleeping apartments of children is important. The organs of respiration will continue healthy or otherwise as the air is pure or impure. Babies when awake, as a rule, are in motion, first a hand, then a foot. Degree by degree, all the muscles of the body develop to action. This continual motion is a normal state for the promotion of growth, and should be in a pure, warm atmosphere. It is not enough that the air of the apartments should be pure and warm; but babies, even little babies, should be taken frequently in the out-door air and sunshine. Just how soon after its birth the baby be allowed the open air depends upon the season and state of the weather: in warm, favorable weather almost from the day of its birth; in the very cold season not until at least a month old. The

little babies who are housed up in winter become enfeebled so that they take cold on the least exposure. Properly wrapped, a baby can be taken out every day at all proper for a medium healthy adult. When out, the infant's face should be turned away from the wind, and the wraps pulled up about the face so the air may be somewhat warmed before breathed, and the eyes protected from the sunshine. It should not be jolted over crossings, nor the cab pulled backward. In very hot weather the baby should be taken out in the cool of the mornings and on the shady side of the street.

We do not favor taking little children out just at dusk in the cool of the evening in summer. They often take cold at this time, even when well protected by clothing. Excursions on the water may be often taken for city babies with good effect. The "open-air habit" of exercise for the baby will invariably give quietness and better sleep, a sedative for the nervous baby. Such babies will often sleep for hours in the open air if properly protected, when they would not sleep over an hour indoors in a warm room. Remember to always turn the baby's face away from the wind when awake or asleep. "The open-air habit" is a prevention of colds and croup; the "open-air habit" is a tonic to the feeble, fretful baby; the "open-air habit" invigorates the baby in every way, — then outdoor exercise in the pure air and sunshine every day when at all pleasant for the baby. Babies are very

susceptible to bad odors. An odor which is scarcely perceptible to an adult may influence their nervous system very unfavorably. Thus the harmful carbonic acid gas of impure air can compromise the health of the baby gravely and rapidly without the parents forming a suspicion of the cause, for the reason the quantity is too light to influence persons of greater vitality.

HABIT.

"A little infant newly born,
Whose tiny hands unconscious hold
The keys of darkness and of morn."

THE education of the baby begins as soon as it is born. The first dressing, the first food taken, the first sleep, all produce marked impressions upon the infant's nature. These first lessons should be of the right kind. How often the first lessons are bad ones through the indifference of the physician and the carelessness or ignorance of the nurse! The educational training of the first month is of great importance, if not the most important period from a health standpoint to the baby. The baby from the first moment of its birth should be treated as an individual, with due respect to its physical and mental rights. The baby is not a plaything for the household, to be taken up and put down at will of any or all of the members, played with, thrown up and down and tossed about as a ball, talked, chirped, whistled, and sung at, chucked, patted, and kissed. It is not a welcome fact, but a pregnant one, that "these messengers of God" are individuals and not playthings. The baby should be systematically cared for, that very early, healthful habits be

established. Systematic feeding to establish a healthful habit of digestion, system in sleep, baths, exercise, air, day in and day out the same thing at the same time, and at the end of three months habits are formed which may influence all the future years of the individual life. This establishment of habit does not mean the same treatment and attention for all babies; but the adaptation to your baby of that rule of sleep, etc., which seems fitted to it; then the persistent perseverance in this mode until you have established a habit for your baby.

As habits are easily formed in infants, so with as great ease they are broken. Regular systematic living for the baby, month in and month out, will save many anxious hours and dangerous sicknesses. This takes time, patience, and very good common-sense in the beginning, and never to break this care of the baby may at times be trying; but in the long run the extra saving of care and attention richly repays all temporary annoyance. In the systematic care of the baby one should seek to avoid extremes, — extremes in feeding, in exercise, in clothing; just enough, not too much or too little, but the happy medium, cannot always be attained without much thought, tact, and careful observation on the part of parents. In the training and care of the infant no organ suffers more than the brain. The brain of the baby may be compared favorably with the other organs of its body. Its powers of endurance are extremely limited. Like other parts of its

organization, it should be carefully protected from influences which may be harmful, otherwise it will suffer many defects. The little brain is irritated and over-exercised in the desire of the parents to show that their baby is bright and winsome. The babies of the working poor in this respect are much better off than those of wealth. The babies of the poor are left in peace, for the reason no one has time to spend exciting them. One rarely hears of a fretful, excitable baby that keeps the washerwoman walking the house up and down all or part of the night, as is often the case in well-to-do homes. The true interests of the baby are too often sacrificed to the selfish and vain gratification, ambition, and pleasure of those who should strive for the baby's greatest good. The rapid growth of the infant's brain in the first two years of life demands a "calm letting alone," if we would have a well-balanced nervous system as a future equipose to the health of the child. The hygiene of the baby demands careful, systematic training, — careful in that the first lessons are right, the right food, the right quantity, the right plan for sleep, for dress, baths, exercise, etc. Once begun right, keep on right, and right habits can but be established, and we have a joyous, happy, and well baby. It is astonishing how quickly and easily impressions can be made on the baby for right or wrong modes of living; and nowhere is it more true than in this connection, that prevention is better than cure. The baby who is trained to systematic habits of physical living will be

more easily governed, more obedient, will be taught patience and be less fretful. The establishment of right physical habits in the infant will not alone lead to a healthy baby, but touches the mental and moral development. Carefulness in preparing the exact quantity and quality of food will soon catch the attention of the year-old baby, and lead to truthfulness in the child. The impression on the child of this exactness and carefulness on the mother's part teaches there is a measure and limitation to action, which tends to develop later in the child the measuring of any and every action. Later, thought is measured and limited, and when this measured and limited thought is expressed in language, we get truthfulness. The Great Father who understands so well the needs of little infants created them animals of habit, delegating to us the regulating of these habits and the pleasure of watching them unfold in a physical, mental, and moral way.

A STUDY OF BABIES.

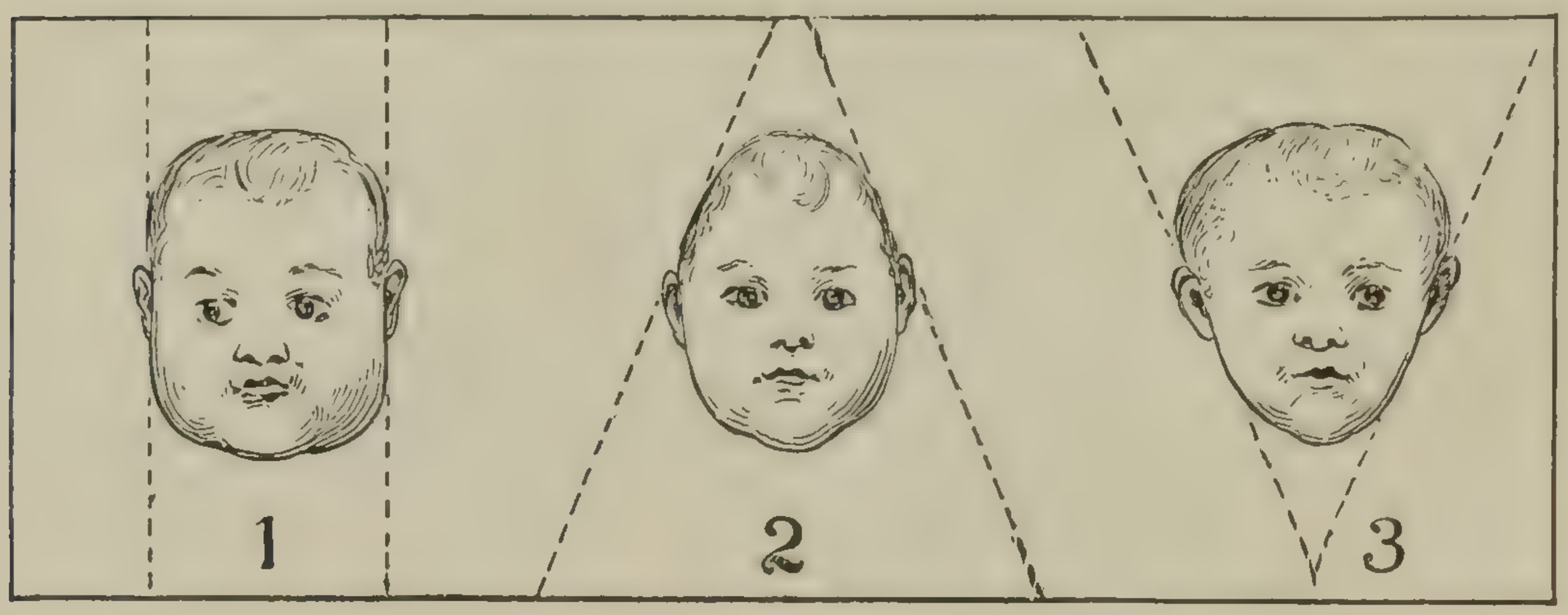
"O bonny brown sons!
O sweet little daughters!"

THE assertion is frequently heard that "babies all look alike." This is a mistake. Babies, even very little babies, do not even look alike, much less are alike. Nor could this be so in even a general way, not having the same parents or environments, the characteristics and influences of which make the great differences in babies. Nevertheless, there are resemblances which lead to a general classification which is helpful when it comes to a study of infantile hygiene. There is the fair, fat, flabby baby, the dark, thin, scrawny one, the one with a big head, thin neck and extremities. Then we have the medium baby, not very fat or very lean. Babies may be classified as to temperaments the same as adults. The characteristics are not as plainly marked as in adults; but, with the temperaments of the parents as a basis from which to work, we very soon can distinguish to which temperament the baby belongs. This knowledge once acquired, notably at first by a study of the parents, is a good foundation to the formation of healthy habits. To know thoroughly

the individual baby is a long stride toward right care and management. Instead of using the old terms of nervous, bilious, sanguine, and lymphatic temperament, we prefer to use the more modern classification of Paul Gibier, a French physician, viz., acid temperament, alkaline temperament, and neutral temperament. In fact, most physicians in studying infants and their diseases divide into acid, excessively alkaline, and alkaline. The neutral temperament is the normal one. The acid corresponds to the nervous, and the alkaline to the bilious. As infants range from the neutral temperament toward the acid or alkaline, just in that degree are they more difficult to care for and train to healthful habits. The baby of neutral temperament is of fair size, with firm flesh, well-developed bony system, broad shoulders and head, appears well nourished, eats heartily, sleeps soundly, cries lustily, is frolicsome, joyous, and happy. This baby is not easily disturbed, does not take cold easily, teeths early, but does not walk or talk as young as the acid temperament, is never taken for a brilliant or "smart" baby. This baby of neutral temperament is a wholesome baby, with plenty of vitality, not one of the rare hothouse plants which draw attention by their exquisite frailty and beauty; on the contrary, this baby is a very ordinary one, with more body than brain, but will grow into a stalwart man with a giant intellect.

The baby of acid temperament is under-weight. The bones

are small and short; the face is narrow; the lips are thin and red; the skin is very thin; the veins blue. This baby is restless, and always in motion, a poor sleeper, subject to violent sicknesses, inclines to stomach and bowel affections. If handfed, gives a world of trouble to find a food to agree with it, very backward in teething, but early to walk and talk, — a delicate plant of rare beauty, demanding constant attention.



This baby often takes its food as if half-starved, but is poorly nourished, because its power of absorption is low. The alkaline temperament is usually over-weight, one of those very fat, overgrown babies; the flesh is flabby; it has large joints and bones, is sleepy, very slow to walk, likes to be petted and attended; one of those babies that cannot be put off. This baby is very easy to take cold, and while not subject to as violent sicknesses as the acid temperament, yet is always ailing, has croup, frets and frets, while very constipated, and

early develops catarrh. The shape of the head of babies is often a help to an understanding of their temperaments.

No. 1. The healthy type.

No. 2. The scrofulous type.

No. 3. The tuberculous type.

The healthy type is the neutral temperament. The acid will incline toward the second, or scrofulous type, and the alkaline toward the third or tuberculous type.

Climate has an effect on children. New countries give us the neutral type; while the extremely acid temperaments are the product of civilization and cities. The alkaline type is more often developed in the country. These temperaments are a hint to the care and management. The acid baby must avoid acids of all kinds, needs to have its casein and starch partially digested. They need oils and fats in baths and food. Fruits must be strictly kept away from them. The alkaline baby eats too much, early develops a taste for sweets, fats disagree, fruits agree, and as a rule is a great milk drinker. These types of babies have been drawn in the extremes so as to be more easily recognized. We encounter all degrees of these different types and temperaments; but by these outlines given we think a basis will be found by which to study your baby and help to a better understanding of its requirements. Since the baby of the household has not the same parents as the neighbor's baby, it can hardly be expected to always thrive on the same habits and food. What is one's

meat is another's poison is frequently verified in the training and management of babies. Parents need to study their baby from and by themselves. Do unto the baby at all times the same as you would like done for yourselves in similar circumstances.



THE BABY.

THE BABY'S BASKET.

"Oh, mothers, with your babies gay,
How dare you be so glad!"

THE baby's basket, especially when fitted for the first born, is of great interest and pleasure to the expectant mother. It makes no difference whether it is the little roll of clothing laid carefully away in the bureau drawer in some humble cottage, or one of the elaborate symphonies in white, blue, or yellow in some mansion. Alike will these preparations for the little stranger be found to pulsate with throbs of mother-love.

What shall be found in the baby's basket? First, two white strings of about six inches in length, made by doubling coarse white thread two or three times and twisting hard; a pair of sharp scissors, these will be needed by the physician; an old woollen blanket or a very large canton flannel napkin to receive the baby at first; a roll of old linen pieces to be used for various purposes, dressing the cord, washing the eyes, mouth, etc.; a roll of old white pieces to be put inside the napkins to catch the first discharges, to be put under the

chin when giving the baby hot water, etc.; a roll of old flannel pieces, if hot cloths should be needed to the abdomen or elsewhere, let these rolls be generous enough at the least to last throughout the first week; a flannel band without seams or hem, and the garments for the first dressing; a cushion with two sizes of safety pins, and some needles and thread are not a bad idea, for some nurses prefer to sew on the band instead of using safety-pins; some diapers, soft and those that have been laundried, for the first use; a bottle of oil, either salad, cocoanut, or better, home rendered lard; a drying blanket to be used the first week in oiling the baby, and one or two soft crib blankets for wrapping the little one in his crib or cosey corner. A baby's hair-brush is better than one of the little combs.

Later the basket may be fitted with sponges, towels, and drying blankets for the baths of water. A powder-puff with a dish of scorched wheat flour may be added later, if the baby is inclined to chafe. After the baby is a few months old, if the scalp is inclined to be dirty, a bottle of bay rum, to be used a very little on the head after the bath when the hair is brushed, will keep a scalp not diseased perfectly clean. A basket with compartments will be found most convenient, so that the bath articles can be kept aside from the wearing apparel. If possible, let the basket be of ample size to hold all of the garments and things needed in the bath and dressing. The basket may also contain a few raisins, large fresh

ones, in case needed at the dropping of the cord. Such a basket, while not a necessity, yet is a convenience and care-saving to every nurse and mother; and we wish every expectant mother might be given the happiness and flush of joy that comes from preparing a basket for the baby.

NURSERY POINTERS.

BABIES who have no artificial food after birth until the milk comes, have very little trouble from colic; but the baby who is kept quiet on sugar and water, or milk and water, or catnip tea, or something else, will almost surely have colic.

Sleeplessness, restlessness, a nervous irritability, and no gain in flesh are symptoms of malnutrition.

Keep on hand some blue litmus paper, to be had of any druggist, and dip a small piece of it into the baby's food. If this blue paper turns red, the food is acid and not fit for the baby.

It is during dentition the demands of nutrition reach their maximum requirement.

Bottle-fed babies are apt to be overfed, and the substitution of water rather than the prepared food once in a while will not only correct troubles from overfeeding, but equally satisfy the body.

Give clear cool (never cold or ice,) sterilized water out of a nursing-bottle, and let the baby drink without stint.

Most mothers need to supplant their own efforts after five or seven months of nursing with some other food.

Nursing babies suffer more frequently than people generally suppose from thirst. Milk appeases hunger, but does not satisfy thirst.

The mother's milk is the food *par excellence* for the baby.

Many a nursing baby suffers on account of the dietetic sins of its mother.

Alcohol and beer increase the flow of milk, but make it of poor quality.

If the baby gets something in its ear or nose that is not readily removed, let it alone until the doctor arrives, for the more it is worked at the more firmly wedged it becomes.

If an insect gets into the ear, lay the baby down on its side with the ear up. Fill the ear with sweet oil, and the insect will probably float into view.

Sometimes an infant's tongue can be exposed to view by simply pressing the cheeks gently with thumb and finger. If necessary, hold the nose for a moment, and the tongue will come in view.

The baby should be trained to speak plainly and distinctly. Baby talk, so cunning, should be overcome as it grows. As birds learn to sing by imitation, so babies imitate the voices they hear. The full, round, and sweet, clear voices of later years are the tones of babyhood.

Milk should be the basis of all infant's food.

A child nursed for even a few months makes a better fight for life than one entirely handfed.

A baby may be filled up to the neck with milk, and still be hungry.

Plenty of foolish mothers are found who put a taste of everything into the baby's mouth, and sometimes what is merely intended to be sucked slips down. Strange food is swallowed and strange tastes created.

A leading physician in one of our great cities relates the following. Some years ago I was called to see a baby who was suffering from chronic indigestion. The father and mother were young; in fact, it was their first baby. After prescribing very carefully and regulating the diet, etc., I left the case for twenty-four hours. Next day I found a neighbor, Mrs. T., had assured them that my prescription was all wrong, thrown away my medicine, and prescribed something. The condition of my mind may be imagined. I said, with considerable vigor, that either Mrs. T. or myself must be discharged. The young mother appealed to me in this way: "Just think," said she, "of Mrs. T.'s experience. She has had eleven babies and lost ten."

Unceasing vigilance and the exercise of good common-sense are necessary in the treatment of babies.

Wrapping the baby in a thin blanket at the moment of immersion in the water when bathing, slipping it off when the baby has become accustomed to the water, will prevent any shock to the young infant in its first contact with the water.

Severe chafing may be a form of eczema, or wrong urine in the baby. If not healed by plain oil or scorched wheat flour, which has been scorched to a chocolate brown, ascertain the cause of the chafing from the physician before applying any of the numerous powders in the markets.

In babies' food it is well to remember that farina is a laxative and rice water an astringent.

The breath of an infant or child should be odorless or "sweet," except, perhaps, immediately after eating. The persistent presence of an odor indicates disease.

Hot water is the best anodyne and nervine for children.

The old adage "spitting babies" are healthy babies is a falsehood. Healthy babies do not vomit.

NURSERY DON'TS.

DON'T forget that the quantity and quality of the mother's milk can be improved by dietetic and hygienic means.

Don't forget a good place for microbes to lodge and cultivate is in the rubber nipple. This adjunct of the nursing-bottle should be scalded by boiling water each time it is used. Simply to soak the nipple in warm water is not enough, turn, rub, scald, and rinse.

Don't put a second supply of food into a bottle containing the remains of a former feed.

Don't forget to give water occasionally to peevish, fretful babies. It will soothe the baby, and benefit many cases of indigestion.

Don't fail to remove the baby from the breast after it is asleep.

Don't let every one kiss the baby.

Don't prepare more than enough food at one time for the baby.

Do not burn a lamp in the sleeping room of an infant.

Do not let the creeping or walking infant carry everything it picks up to its mouth.

Don't cover the baby's head in the house, asleep or awake.

Don't neglect a constipated baby.

Don't hamper the baby by tight or heavy clothing so it cannot kick and move around.

Do not stuff a new-born baby.

Do not fail to watch the closure of the fontanelles in the baby before time for the teeth, to know if the bone growth is all right.

Don't think that the neighbor's baby is the only one affected by Hereditary and Prenatal Influences.

Don't fail to treat the baby as a sensitive, intelligent being from the first moment of its birth.

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